CHURCH ARCHITECTURE

BY

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EDWARD NEVILLE STENT DEL.T

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Church Architecture.

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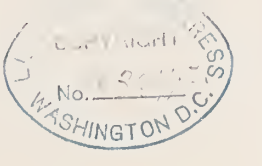

BY

H. Hudson Holly, Architect,

Author of "Holly's Country Seats," etc.

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TO

GEORGE EDMUND STREET, ESQ., A.R.A., F.R.I.B.A.,

THESE PAGES ARE INSCRIBED

WITH SINCERE RESPECT.

PREFACE.

In offering to the public a work on Church Architecture, we feel some delicacy in laying down any positive rules on the subject, as the views of individual parishes vary so greatly. We have in all cases based our opinions on the laws of ecclesiology, although with many this may be open to the objection of apparently laying too much stress on outside appearances. In execution, however, the designs may be either modified or elaborated to suit various tastes, which it does not form part of the architect's duty to question.

It may be thought singular that we have given no estimates in this work, but as the prices of labor and material have been so fluctuating, we deem it more satisfactory to make these at the time of building. A previous work on country houses, published by us in 1861, gave estimates according to the prices ruling at the time, which afterward advanced, during some six or eight years, at the rate of ten to twenty per cent. per annum.

We have been much indebted to the able assistance of Mr. Alfred Sargent, and Thomas H. McAvoy, in rendering the drawings. The title-page was composed by Mr. E. J. Neville Stent—an artist whose designs for interior color decoration are unrivalled in this country.

LIST OF PLATES.

CONTENTS.

CHURCH ARCHITECTURE.

CHAPTER I.

INTRODUCTION.

In a new country like ours, where no precedent for architecture is afforded, we, like other nations in their early art-efforts, are compelled to fall back on older peoples for examples in style. Rome's prototype was the Greek, and Byzantium received the Roman arch and idealized it into a Christian emblem. The pointed arch next sprang from this, in which we have all the beautiful varieties of Gothic. What, then, should be the prototype of our American architecture?

The English styles have heretofore been generally received, as our ancestors were mostly from British soil; and English churches, adapted for wants and climate differing essentially from our own, have been copied literally. For example, in the violent storms of our severe winters, the deep valleys of the picturesque English roofs become receptacles for drift and snow; not only creating a weight sufficient to strain the building, but almost certain to produce leaks. Again, the gloomy skies of England necessitate much larger windows than our own clear atmosphere and bright sunlight demand. In this respect our requirements come nearer those of sunny Italy; where the window openings, often as large as in the English examples, have the pointed arch more obscured by what is termed plate tracery (see fig. 1), in which the space between the subordinate arches is simply perforated with geometrical figures. The English design has the intermediate space cut away, showing its tracery in simple lines (see fig. 2). We may remark, however, that the earliest and best Eng-

lish windows partook more of the form of plate tracery, and the only excuse for the change must have been the admission of more light.

Line tracery was supposed to have originated from its resemblance to the intertwining of vines over the opening; which theory is as fallacious as that of the Gothic nave having been copied from the intersecting lines of an arching avenue of elms. A slight study into the derivation of this tracery will show how the forms of fig. 2 simply resulted from fining away the stone of number 1. This, in our opinion, was one of the first steps toward decline; for not long after line tracery gained favor in England, it degenerated into what is erroneously termed the Perpendicular; for now, instead of the arch remaining pointed, it suddenly became depressed; and, instead of the lines of tracery being vertical, emphasis was given to the lines horizontal; in fact, the whole tracery bore a strong resemblance to an iron grating; losing entirely the primitive and beautiful characteristic of dividing columns with capital and base, surmounted by arches, their tympanums pierced with a simple quatre-foil, like a star of light.

In correct Gothic, as a rule, shafts without capitals are unconstructional; and, the moment tracery is found minus this distinguishing feature, and with its lines continued unobstructed to the base of the opening, from that moment dates its decline.

As we cannot entirely approve of the old English models for imitation in this country, so we certainly object to the modern English, or, as it is sometimes called, Victorian Gothic, such as practised by the late Sir Charles Barry. Unfortunately, much of this new work is characterized by a straining after effect—a startling, queer, bizarre combination of all sorts of odds and ends; all the most extravagant points of the old work carefully introduced, but with its harmonious repose and broad subduing masses neglected. A Gothic building should not be all quaint turret, tortuous sky-line, and grotesque gargoyle. Neither should its entire façade be covered with detail, however exquisite may be its design. The style of the palace of Westminster, and Eton Hall,—Barry's master efforts,—is not of a chaste and harmonious description. The multitude of details, the very walls covered with interminable

panel-work and tracery of the rigid, cast-iron type, with never a resting place for the weary eye, throw these works back to the worst and weakest period of Perpendicular—that decrepid Gothic just hastening to its downfall. Such over-labored buildings remind us strongly of some clever, yet interminable, talker, whose conversation needs greatly the relief of a few "brilliant flashes of silence" to enable us to appreciate the rest. Fussy, unmeaning, over-loaded ornament is a Renaissance blunder; a dignified repose and breadth of effect should be leading characteristics of our model Gothic edifice.

Another mistake in modern work is the anxiety to render all the parts too fine and finished. "How often do we see," says a writer for the Ecclesiological Society, "a simple village church, consisting of low and rough stone walls, surmounted and almost overwhelmed by an immense roof, and pierced with some two or three plain windows on each side, having a short, massive tower at one angle, or in some seemingly accidental position, which, nevertheless, every one confesses to be as picturesque, beautiful, and church-like a building as the most critical eye could wish to behold; while a modern design, with all its would-be elegancies of trim, regular buttress, parapet and pinnacle, will cost twice as much, and not look like a church after all. Here, perhaps, one half the money is laid out, first in procuring, and then in smoothing and squaring great masses of stone, or in working some extravagant and incongruous ornament; whereas the small and rude hammer-dressed ashlar or rubble-work of the ancient model has a far better appearance, and allows a larger expenditure where it is most wanted—in the decoration of the interior."

A wall constructed of these small stones will look far more natural, and therefore far better, than when laid in large, regular blocks. Besides, the latter render less prominent the outlines and decorations of the windows, etc., so that our fine carving does not in reality produce so great an effect as it should. Contrast, the play of light and shade, and richness and variety of color in the material, are of far more consequence, and add more to the effect of a building, than labor thrown away in smoothing and squaring great masses of granite or other hard stone, a mode of treatment only suited to marble. The only large stones used by

the mediæval builders were the long ones employed at intervals to bond the work together, and those at the angles, which had coins of more regular workmanship. Even the finished stones of the apertures should not all be of the same length or height, not only because they would thus help to divert the eye from the decorated portions, but because irregular jamb-stones form a more efficient bond with the main wall. Again, the modern practice of not only discarding small stones almost entirely, but rubbing and polishing the blocks to a perfect equality of surface, is destructive of much fine effect. First, every single stone is chiseled and filed as it lies on the ground, and then, after the building is completed, beginning from the top as the scaffolding is removed, the workman is fain to shave down the face of his work as clean and smooth as the top of a table. A contractor once remarked, with profound contempt, that those "old fellows left their masonry disgracefully rough, and mouldings untrue, and joints so uneven, that you can see the face of every stone is in a different plane, while they could seldom manage to make two opposite walls of the same length." Mr. Ruskin, with rather a different object, had remarked the same of the "old fellows" before.

But the man of taste and appreciation will not fail to remark that an essential characteristic of all Gothic work, whether in stone, wood, or glass, is that peculiar inequality of surface which arises from a slight difference in the reflection from, or refraction through, the pieces which compose the surface. No two stones laid together will ever have their faces so exactly in the same plane as to reflect the light at exactly the same angle, unless extraordinary care has been taken to spoil the work by an over effort in this particular. No boards and beams in the old work were planed quite smooth, but every cut of the chisel or axe with which they were dressed reflects in a different direction. And, in like manner, no piece of old window-glass was so uniform in thickness and texture throughout as not to refract the light unequally, and so produce what is called the gem-like and streaky appearance, which modern glass makers have long tried to imitate by various kinds of artificial streaking and specking.

In this country a strong movement is going on in favor of Italian Gothic; and there are many arguments for the adoption

of this beautiful style, whose best features are peculiarly suited to our uses. We have already instanced the Italian windows, with their plate tracery—we may also notice Italian mouldings as suited to our brilliant atmosphere. These are of a flatter, equally graceful, and, we think, far more refined character than the English, which are usually of the deep undercut type, necessary in cloudy atmospheres to a due effect of light and shade; while with us, as in Italy, the same effect is produced by sharp lines of shadow.

We must not, however, be limited in our choice to the Italian; every country has its characteristic beauties from which we may cull. The flat Italian roofs, for example, are far less picturesque than the broken sky-lines of northern work, and seem due to a lingering influence of the old classic examples which everywhere surrounded the Italian builders, and doubtless had an effect upon their Gothic conceptions. Indeed, so marked was this influence that Gothic can never be said to have attained a true feeling in that country. The deep cornices which surround their buildings, following up gables and breaking round buttresses, are evidently motives from the entablature of a classic temple. These are a very objectionable feature, and do as much as they well can toward destroying the effect of every front they surmount.

Another and more commendable characteristic of Italian churches is the frequent absence of buttresses; which, while detracting somewhat from the picturesqueness of these noble edifices, certainly give a grandeur and breadth of effect well worthy our imitation. Buttresses arose in northern Europe as a means of overcoming the lateral thrust resulting from the pressure of groined and vaulted ceilings. In design XII. we have introduced such a ceiling; but as the expense of this would be enormous if carried throughout the building, it is confined to the chancel—that being the part proper to be treated in the most sumptuous manner. Buttresses are accordingly added to the part treated externally as the chancel aisle, of sufficient size to resist the thrust of the flying buttresses, which, in turn, transmit the thrust of the stone vault to these massive outer walls. But as the remaining walls only support an open timber roof, framed in the manner described in our chapter on

roofs, which effectually does away with the necessity for buttresses, they are here omitted. They are, it is true, necessary in some degree for a timber roof framed in the ordinary manner, but what we object to is the employment of these useful members simply for the sake of ornaments; suggesting the barren invention of the architect in filling blank spaces.

The Italian method of internal buttressing is to be recommended in some cases for economy of space, none of which is lost on the inside, as these inner abutments may be arched over, obstructing but slightly the continuous passage of the aisles. The *chevet* or apsidal recess is also a very pleasing instance of internal buttressing.

Another plan consists in forming alternate recessions of the wall, thus producing a sort of corrugation. The windows in this case occupy either the internal recess or projection; if the former, the square reveal is splayed or shafted, an arch or corbel table bringing out the wall just under the cornice. A similar or partial filling-up may also be resorted to under the sills if necessary. Externally, the recesses are treated in the same way.

As a means of wall relief, the Italians introduced constructive shading in variously colored material, giving a polychromatic effect of great life and beauty. The daily-growing tendency with us toward color is greatly facilitated by the almost endless tints of many of our beautiful building materials, and is a striking evidence of increasing artistic taste in our people. In England this is rapidly superseding the gloomy monotone of their buildings, and illuminated tile in bands, and brilliant-colored polished marbles, are daily gladdening the lines of their façades. Some of the remarks of Mr. Street, the eminent English authority on modern Gothic in regard to this question of color may prove interesting:

"Our buildings should, both outside and inside, have some of that warmth which color alone can give. They should enable the educated eye to revel in bright tints of Nature's own formation; while to the uneducated they would afford the best of all possible lessons, and, by familiarizing it with, would enable it to appreciate, the proper combination of color and form. If the day ever comes when our buildings thus do their duty, we may hope to see a feeling more general and more natural for

color of all kinds, and for art in every variety in the bulk of our people. The puritanical uniformity of our coats—indeed, of all our garments—is but a reflection from the prevailing lack of love for art or color of every kind. A rich color is thought vulgar, and that only is refined which is neutral, plain and ugly. Oh, for the days when as of yore color may be appreciated and beloved—when uniformity shall not be considered beauty, nor an ugly plainness the fit substitute for severity."

Then, again, the chancel in England is almost universally square, while Italian chancels are invariably apsidal—the altar being brought out from the eastern wall, and placed in the centre or chord of the apse.

This arrangement recommends itself not only for superior beauty of form and antiquity of usage, but also for many typical or symbolic reasons; some of which are given below in the words of the Rev. J. H. Hopkins, the distinguished American ecclesiologist:

"Except Britain, all Christendom, from Spain to the Indus, and for more than the first thousand years of the Christian Church, knew no other form of sanctuary than the apse, and until of late, this universal rule has continued unbroken. No true Catholic can pretend for a moment that the little corner of the world composed of the British isles is of authority enough to outweigh so vast a preponderance of Christendom.

"A strong objection to the square east end is that it has proved an irresistible temptation to a great east window or great east picture; either one of which is so prominent an object in itself as to throw the altar, no matter how brilliantly decorated, into comparative obscurity and insignificance.

"But as symbolism is the soul of all church architecture, so the symbolic reasons for the preference of the apse outweigh all others, and lead us into such a wide field that I almost hesitate to enter it. The symbolism of the square end is good as far as it goes, and all that it has of good is equally retained by the other. But the apse wonderfully transcends the square in every respect.

"The nave represents the Church militant; the choir, the Church triumphant, and the sanctuary, heaven itself; the eternal abode of the ever blessed Trinity.

The circular outline of ground plan, wall, and converging roof of the apse, convey the idea of eternity; of which the circle alone is the universal symbol—not the square—and in an ancient apse, with its full furniture, the three persons of the Holy Trinity were symbolically indicated: God the Father by the throne, standing at the top of a rising pyramid of steps at the east, the visible centre of all things, the seat of original power and majesty; God the Son by the altar, on the chord of the apse, like the throne set in heaven 'in the midst,' and on it the cross, the symbol of the atonement; God the Holy Spirit by the baldachino, or canopy, over the altar, as the holy dove descended and abode upon the Lord. The grand outline of the circle itself gave the idea of the unity of all in one—essence, majesty, and power.

"The seats for the presbyters, that run round the curved wall of the apse, are the four and twenty elders sitting clothed in white raiment. The seven lights of the sanctuary are the seven lamps that are the seven spirits of God. The polished and shining marble of the floor is the sea of glass, like unto crystal. With these sublime realities imaged forth, no matter how faintly, in a symbolism like this, who is there that would not find himself carried in spirit up to the very courts of the new Jerusalem on high, in that heavenly feast in which Christ Himself cometh down to us? Who is there that would not realize more vividly the deep meaning of St. Paul's discourse concerning Divine grace when he assures us that God 'hath quickened us together with Christ, and hath raised us up together, and made us to sit together in heavenly places in Christ Jesus'?"

The spirit of eclecticism which so largely pervades modern art, would seem to belong to us as naturally as the English language, with its Greek, Latin, German, and French derivatives. Why should not our architecture equally cull from all sources of beauty? If in some particulars this fusion of tongues and dialects may lack the grandeur of simplicity which some original languages possess, it at least affords the advantages of being full almost to redundancy; and of forming a very perfect channel for the expression of intricate ideas. So with modern architecture: accumulated as its knowledge has been from

the light of past ages. The researches of the archæologist and intercourse with foreign countries have legitimately placed this acquired experience of generations within the grasp of the practitioner of the nineteenth century, to be translated and adapted freely by him.

We in America, in virtue of our peculiar place in history, are doubly entitled to cull from the Old World whatsoever may serve to improve and beautify our architecture, and impart to it their best points of construction and ornament; and thus treated, architecture as an art is still, and must ever be, living and progressive.

We are, unfortunately, too prone to imagine that we have already attained heights of civilization and culture which must leave us an imperishable name in all ages to come. But reasoning from analogy, what assurance have we that this will be so? Other nations have passed away, their languages dead, their histories a mere tissue of doubt and fable; all that remains of them the massive buildings they reared, the immortal works of art they wrought,—which not the centuries lying between us have succeeded in wholly destroying. But with all our boasted superiority over them, supposing our civilization were suddenly to cease, our country and government to be destroyed, like those of ancient Rome, what would be left in an equal lapse of time, to show what we were in our prime, supposing only works of art to be preserved? Should we not, perhaps, be adjudged more barbarous than the peoples of previous ages? Would the majority of our present churches or public buildings speak as much for the national advancement in art as the Parthenon, York Minster, or Cologne cathedral? We must acknowledge that there is much to be learned and done, much depending on our using knowledge with discretion, and striving in all we do to attain the stamp of a characteristic nationality.

At the same time that we admire the works of Greece and Rome, or the glorious monuments of mediæval times, we should never forget that great part of their admirableness consists in their being a type and outgrowth of the spirit of those ages. It seems folly in an American architect to wish literally to reproduce them. His European *confrère* has a

more valid excuse in the presence of those works around him; while the interest he must necessarily take in archæological and antiquarian researches would, of course, color his own ideas in their practical working; but with us, unbiassed as we are by ancient examples, it would appear that a style peculiar to ourselves ought naturally to take the place of oft-repeated copying from the past. But the facts are not so. Not a single attempt at an American style has shown itself; and we have been astonished to hear some of our architects say that they neither expected nor endeavored to produce anything purely new or original. The older members of the profession especially seem settled in this conviction—indeed, we have one in our mind who repudiates all modern work, refuses to read any book on architecture published within the last fifty years, and looks upon everything not practised in his childhood as preposterous to practise now. With all due respect and admiration for ancient works, we consider that our own requirements are so different, that a continuous change in architecture should be taking place to conform with the same. And this must be accomplished by architects up to the true spirit of the age, and not by archæologists.

It seems almost superfluous to add that a pure Gothic spirit should animate our future church architecture—leaving among the follies of the past those pagan renaissance copies of Greek temples. For what heaven-reaching thoughts are inspired by the flat roof of the latter type? its horizontal lines—its heavy-browed portico and square-headed windows? What Christian sentiments are called forth by its heathen symbols of the inverted torch, the heads of bulls and goats,—sacrifice displeasing unto God and useless to wash away sin,—and its garlands of flowers hung round the walls, as though left there by the pagan actors in some idolatrous rite? More than this, even the merit of being correct copies of the original they do not possess, for, in the first place, the Greek temples had no windows, by inserting which we destroy the simplicity and unity of the building; and, secondly, in order to gain room for the people—who originally stood outside in the colonnade or peristyle surrounding the temple—we cut out this latter feature altogether, leaving only the

portico in front. The walls are then extended to the limits of what should have been the peristyle, and the whole affair becomes a miserable departure from the style it professes to revive.

Besides this, Christian churches require bells; and to accommodate these we must still further outrage the proprieties of Greek architecture by piling up a number of small porticos, one on the other, by way of a steeple; the absurdity of which erection, starting out of nothing at the top of a portico, is too evident to need comment. Surely nothing but a false taste can wish to perpetuate these monuments of paganism in a Christian land, when we have in the splendid mediæval remains, yet preserved, such perfect models of buildings, suited in every way to the services of our Church.

CHAPTER II.

THE WORKMAN; PAST AND PRESENT.

We have in the preceding chapter taken some exceptions to modern architecture—whose professors have, nevertheless, especially in the mother country, wrought out some noble works, worthy of going down to posterity, side by side with the monuments of the past;—to which the vivifying hand of modern art has given no unworthy restoration of their pristine splendor.

But when we seek, below the man of culture, the artist deeply learned in the secrets of his art, where are we to find the able assistants, the workmen, such as those who in mediæval days wrought *con amore* on the edifice his skill devised, and felt with him a personal interest in its progress, and an equal delight in its success.

The modern artisan is a being whose perceptions seldom rise above the sordid mechanical side of his work; no dream of beauty enters his dull brain, glorifying the labor of forge and chisel, and making it something akin to the royal toil of painter and sculptor. No poetic sympathies, such as inspired the hammermen of old, make him emulous to render the least detail that passes beneath his hand worthy the grand whole. To drudge through his stint,—doing just as little as will pass muster with his superintendent, fixing his mind the while, not on the matter in hand, but on the beer and beef to follow, and the dollars and cents to be pocketed,—seems the main idea of the mechanic as he is.

It was in the high standard of the workman that the mediæval architects had such an immeasurable advantage over ourselves. Without this magnificent coöperation, they might, perhaps, have been far behind us; but to take one branch alone,—look at the freemasons,—that ancient

guild which claims to have been handed down in unbroken line from the day of Solomon. However that may be, we know that in the lawless days of old, when anarchy, conspiracy, and rebellion seemed the normal condition of affairs, while patent rights and the like protections were unknown, the instinct of self-preservation led artisans to band together for mutual aid and the preserving and handing down the secrets of their craft. So the goldsmiths' guild, the merchant tailors', and many others were formed, and among them the guild of freemasons. We do not know that they attained any special prominence until about the twelfth century, when the Church called in their aid in building those superb cathedrals and abbeys which now began to rise all over Catholic Europe. It was now that what we may call the *science* of Freemasonry, the religious and mystic element of the craft, was introduced by the monks, who conceived and planned out what the masons themselves executed. It was then that the confraternity, upheld and patronized by the Church, was acknowledged as a great power; and they walked among men, the chosen and protected of God, honored in the square, mallet, and compass of their trade as the pilgrim in his scallop shell, or the knight in his golden spurs.

It was through this union of scientific knowledge in the Churchman with practical ability in the builder, that liberty of the workman—a principle which may be called the life-blood of Gothic art—was evolved. Each brother had appointed to him his special part of the work, and, whether it were the fashioning of finial or crocket, niche, tracery, statue, or bas-relief, its lavish ornament was the outpouring of his own genius; and in the love and sacrifice of an unfettered spirit, he gave, as it were, his life to the work under his hands.

Members of lodges held the various grades of master, companion, and apprentice. On the first, who might be either monk or layman, devolved the superintendence and responsibility of the work. The companions wrought at the exquisite sculptures, and other ornamental details of the building, and the apprentices or laborers did the heavy manual part. Thus all wrought in harmony, from the mere hewer of stone to the master, to whom all looked up with reverence.

There was a broader division of the fraternity into bands of ten; each band under the leadership of an overseer or warden, whose duty it was to instruct the members of his company in their art, and gradually initiate the more deserving into the secret symbolism of the craft, and its unwritten science of construction.

In those palmy days for art, moreover, which it seems a misnomer to call dark ages, the highest ecclesiastics were not only patrons, but art-workers in person. St. Dunstan, the most accomplished and learned prelate of his day, who flourished about the middle of the tenth century, was not only archbishop of Canterbury, and held a position at court, equivalent to that of prime minister at the present time, but was, likewise, a designer and admirable metal-worker—laboring with his own hands at the forge to produce those exquisite ornaments in wrought metal, for which the old cathedrals are famous. Such a union of high cultivation, with rare mechanical skill, could not fail to inspire in the heart of the working man an equal feeling for the esthetic element of his toil, and that this was the actual result is attested by the fact that those simple mechanics, all unknown to fame, filled the churches of their day with works which artists now eagerly choose as models for designs of a similar character.

The true, and indeed, the only path for a return to this standard of appreciative labor, is the art education of the workman. We are not without wealthy men, of liberal views, who have founded free colleges, schools, and libraries, all with the laudable purpose of improving the intellectual status of the lower classes; but these, though admirable in intention, do not reach the difficulty. The late Mr. Pugin's enthusiasm for art, led him a step farther in the right direction. One of his many enterprises was the establishment of a stone-yard, where he personally undertook the instruction of workmen in the execution of carvings, instinct with the spirit of true Gothic. He succeeded admirably for a time, and had he not become involved in pecuniary difficulties, the scheme might have developed in a still more extensive form. At present, the noble South Kensington museum is being daily found of incalculable value, in familiarizing the eye and mind of the artisan with forms of beauty, and correcting er-

roneous ideas of what constitutes appropriate ornament. Here are to be found models and specimens of every imaginable art workmanship; besides galleries of the best modern paintings—all free to the workman's inspection. There are also classes, and competitions for prizes to be gained by the best original model, or design, of a given subject; and such an institution is what we sorely need in this country. There would the painter be instructed in the harmonious blending of colors, and the principles of design practised among various nations and in all ages;—a form of education equally useful to the designer of carpets, draperies, and furniture stuffs. There the carvers,—who, perhaps, are well enough able to chisel out an ordinary Corinthian capital, with its eternal acanthus, but who would utterly fail of conceiving or executing the spirited and ever varying forms of Gothic scroll or leaf work,—would have eye and hand taught to appreciate, and work out, with feeling and power, those graceful lines, whose beauty is ever fresh, ever immortal. The plasterer might here acquire the subtle touch of the artistic moulder, and realize that there were higher objects to attain than centre-pieces, like over-blown cabbages, and cornices of sprawling, impossible leaves, fruit, and flowers, gothic and classic details commingled, and both spoiled in the execution. We may say, that we have never seen a piece of ornamental plaster-work, designed by one of the craft, which had the smallest pretensions to artistic merit. Lithographic designers would here get the "grammar of ornament" at their fingers' ends; instead of producing decorated title-pages, which have the appearance of wrappers for hair-tonic. The very stone-cutters would be developed into young Ruskins, and the millennium of art might be speedily expected. The cabinet-maker, the glass-stainer, the potter—are all to be nurtured in the love of the beautiful by our lyceum; but simply to enumerate the various trades which would reap its benefits would occupy more space than we could well spare.

We may conclude by mentioning the iron-founders; who, if the good St. Dunstan be, indeed, their patron saint, had best invoke his aid right earnestly, and then endeavor, without delay, to reform their works,—which are as lamentably de-

ficient in anything like art as those of their fellow mechanics. A dissertation on the whole subject of metal work would be far beyond the scope of one article, but some of the leading principles of its manufacture may be briefly referred to.

It is of the first importance that every design should be not only harmonious and consistent in itself, but with the particular kind of metal in which it is intended to be executed. For example: Designs are not unfrequently prepared for cast iron, which ought to have been for wrought iron—evidenced by those distinctive features which could only fitly belong to the latter. By this error, their authors clearly proclaim an intentional imitation; just as much as though it were a design for stone or wood that they wished to counterfeit.

Again, very crude and egotistical ideas are entertained by many persons as to the manner in which wrought iron work should be executed. It is taken for granted, that, because welding is a very natural mode of making junctions, it was almost universally adopted in ancient work; and that any departure therefrom should be decried as "not legitimate." It is forgotten that riveting is a process largely attainable only with wrought iron, and therefore, is also a natural process; though to rely solely thereon in mediæval design, might be considered as "metal joinery." The introduction of rivets and bands, so far from being inadmissible in welded scroll or other work, is productive of agreeable variety, providing they are made points in the design; while the proper tapering, or diminishing, of all the outgrowths of scrolls, furnishes the best evidence of hand-labor having been bestowed upon them. Frequently, however, the manufacturer is restricted in developing the latter feature to its proper extent, by the necessity imposed on him of keeping down the cost. Complaints are sometimes made, not without reason, that smiths will persist in filing their work, and so obliterating the marks of the hammer; but this will rarely be the case when a design is such as can fairly be executed by a smith's ordinary tools. It is notoriously true, on the other hand, that smiths are too often expected to forge that which neither hammer, cutter, nor punch can by any possibility produce on the anvil. Hence, complaints are unfairly made, on grounds and

for reasons insufficiently understood. A determined and careful study of the processes employed by the best artificers of all times, especially our own, in which mechanical contrivances have been so largely augmented, would enable artists as well as manufacturers to avoid prejudice, correct errors, and attain success.

Still another form of metal work—malleable cast iron—is by some persons, who profess to be very learned in this industry, rigidly proscribed. These gentlemen cannot have endeavored, candidly and honestly, to comprehend its capabilities; and, in condemning the use of a material which modern science has produced, do but resist a law of commercial economy. Malleable iron has its legitimate application, and this there is no difficulty in defining. To adopt it for designs in which the chief characteristic suggested to the mind would be *welding*, is manifestly an absurdity, because for all practical purposes it is incapable of this mode of manipulation; and as absurd would be its use for those purposes in which ordinary cast iron is available. It should always bear the impress of its mode of production (*casting*) and when used in the ornate parts of work, constructed in frame of wrought iron, and secured thereto by means of rivets, screwed pieces, or bands, the manufacturer has at hand an exceedingly economical as well as durable and ductile material, capable of great variety in treatment,—since it can with ease, after passing the annealing process, be hammered and variously shaped.

Iron work especially, whether for good or evil, seems destined to play a conspicuous part in America, and it is of the utmost importance to us, if we are to have it in such profusion, that it should be good and correct. It is the height of folly and bad taste to keep on casting and re-casting the wretched forms, unworthy the name of designs, which, unfortunately, crowd our founderies, and then add insult to injury by painting and sanding these horrors to imitate stone. So many lamentable failures have been made in the use of iron, that, in despair, we feel almost tempted to give the same advice to those about to employ it, as Charles Lamb did to those about to marry: "Don't!"

The correct principle is, that when a new material is brought into requisition, a new style should be devised to meet

it. This was the case when Gothic architecture succeeded Greek, which last, as we have shown, was quite inapplicable to stone construction. It is neither truthful nor correct to reproduce Renaissance or Gothic façades in cast iron, nor to veneer a brick building with an iron shell, cast in imitation of stone courses; but if, in the advance of science, it has been found that iron can be used to advantage, it is surely possible that the architect of the nineteenth century has sufficient courage to resist the temptation of reproducing existing models, and invention and originality enough to found a new order, adapted expressly to its use.

We do not specially admire the effort of Sir Joseph Paxton, at Sydenham, yet, for a beginning, this was certainly creditable. Neither are we pleased with the appearance of our modern shops; where the entire façade, though really supported by an iron lintel, rests to all outward seeming on a single sheet of plate glass; but where the exigencies of trade require these large windows, it would be unjust in the architect to refuse to answer the call. Now, iron seems to have a peculiar fitness for this purpose, but good taste would suggest a more appropriate mode of rendering.

Once more—to return to the subject of art education, from which we had wandered—how potent would be its influence in eradicating the false notions of beauty, so generally entertained by workmen. Let us imagine ourselves in the cemetery of Greenwood; where, perhaps, is to be found a larger collection of execrable attempts at art than in any other spot on this continent. One of the best tombs—which really looks as though the mausoleum maker had been a fellow of some parts—is closed by a massive oaken door, secured by wrought iron hinges, of admirable design. Alas! here steps in the painter; and, with zeal worthy of a better cause, besmears the whole with bluish paint, and then elaborately peppers it with white speckles to imitate granite! (Fancy wrought iron hinges worked in granite!)

"Now, had these children (in art) been at home," or acquiring at our institute the proper direction for their honest desire for adornment, just such men as this painter would have developed an ambition which would have carried them to higher things, and an appreciation of real

beauty. This is no new thought. It has for some years been the cherished intention of the American Institute of Architects to organize a school and museum of art, including a library, courses of lectures, and classes in design, for the benefit of draughtsmen and mechanics, where they may freely receive the very best instruction. Such a scheme needs only the co-operation of men of means, who, by turning a portion of their wealth into this channel, will be doing quite as good a work as founding colleges for instruction in Greek and Latin. It should be remembered, moreover, that the benefits of such a school are, in the end, returned to the patrons themselves; not alone from the impetus given to the arts specially relating to architecture, but throughout the domain of art in general.

It is believed that the establishment of an architectural library alone would be an important practical means toward encouraging the erection and improvement of public and private buildings, in accordance with the best principles of art, and the latest and most approved developments of mechanical science; and thus contributing to the future convenience, elegance, and money value of property in real estate. Our merchants pay heavy premiums to insure their property against the risks of the elements, and it is obviously as good economy to insure against risks of misdirection, and waste of material, time, and labor involved in improving their real estate, by providing American architectural students with the basis of a sound professional education. And while they profit by the intelligent labors of the thoroughly trained architect, their homes may glow with forms of beauty, wrought by the hands of artisans whom their liberality will have freed from the trammels of a sordid, unenlightened mind. And the men thus educated, would, in turn, educate others, and sow the good seed broadcast to elevate and refine their fellows over all the land. Now is the time to encourage, by every means in our power, the culture of the people, if we would show the Old World that neither a log-hut nor a cast iron Corinthian column is the American *beau ideal* of art and architecture.

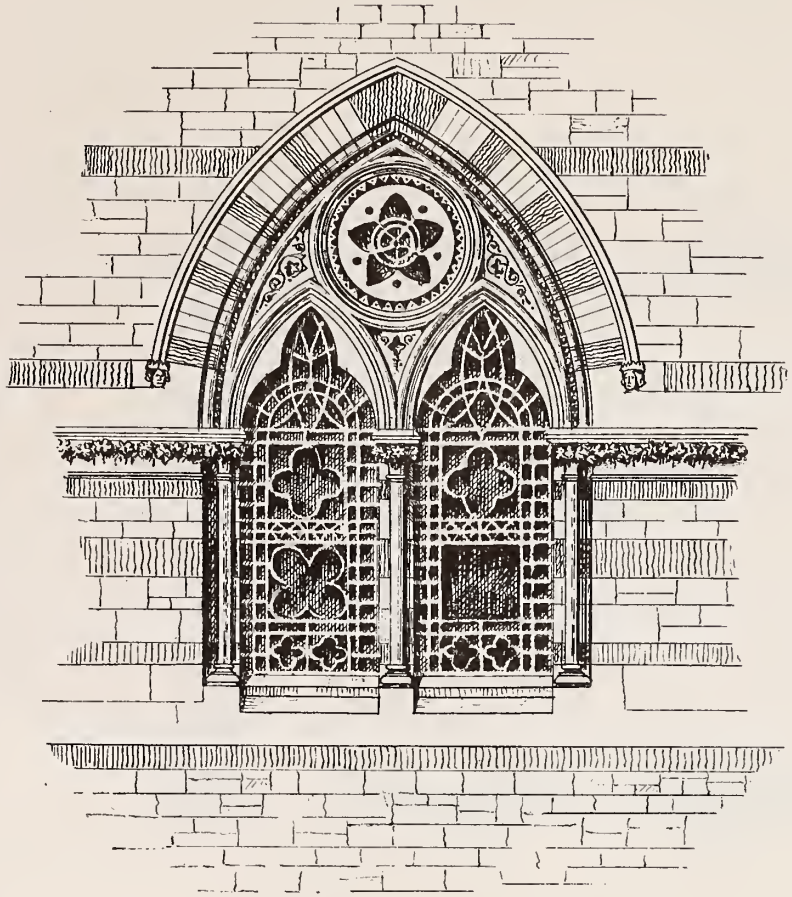
We feel convinced that the right path needs only to be pointed out for our art patrons to second us in following it; while

thus guided and elevated, our workers will rise to the standard of their fellows of old, and filled with the confidence of difficulties surmounted and knowledge attained, will go on from strength to strength, rejoicing unto the end.

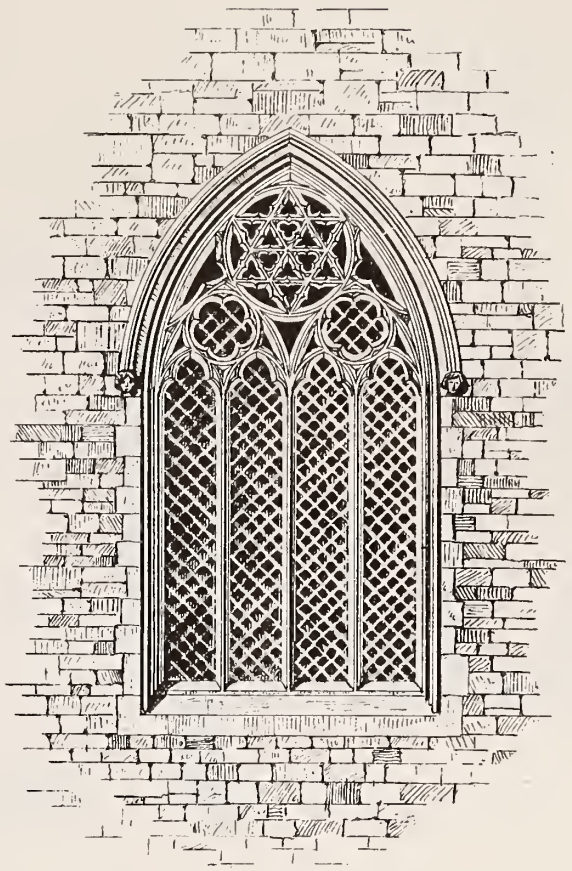
Within a few months, since the above was written, a great advance has been made toward realizing these intentions. The New York Chapter of the American Institute of Architects have not only, through the liberality of friends, secured several thousand dollars' worth of books and photographs, but donations of books, models, and pictures, are continually coming in. Two courses of lectures have been delivered through the winter of 1870–71, and the reading-room is beginning to be thronged with art students every evening.

It is hoped the public will continue their generous coöperation. A visit to the room, 925 Broadway, will, we think, convince them of the worthiness of the object.

Plate I.



— Fig. 1 —



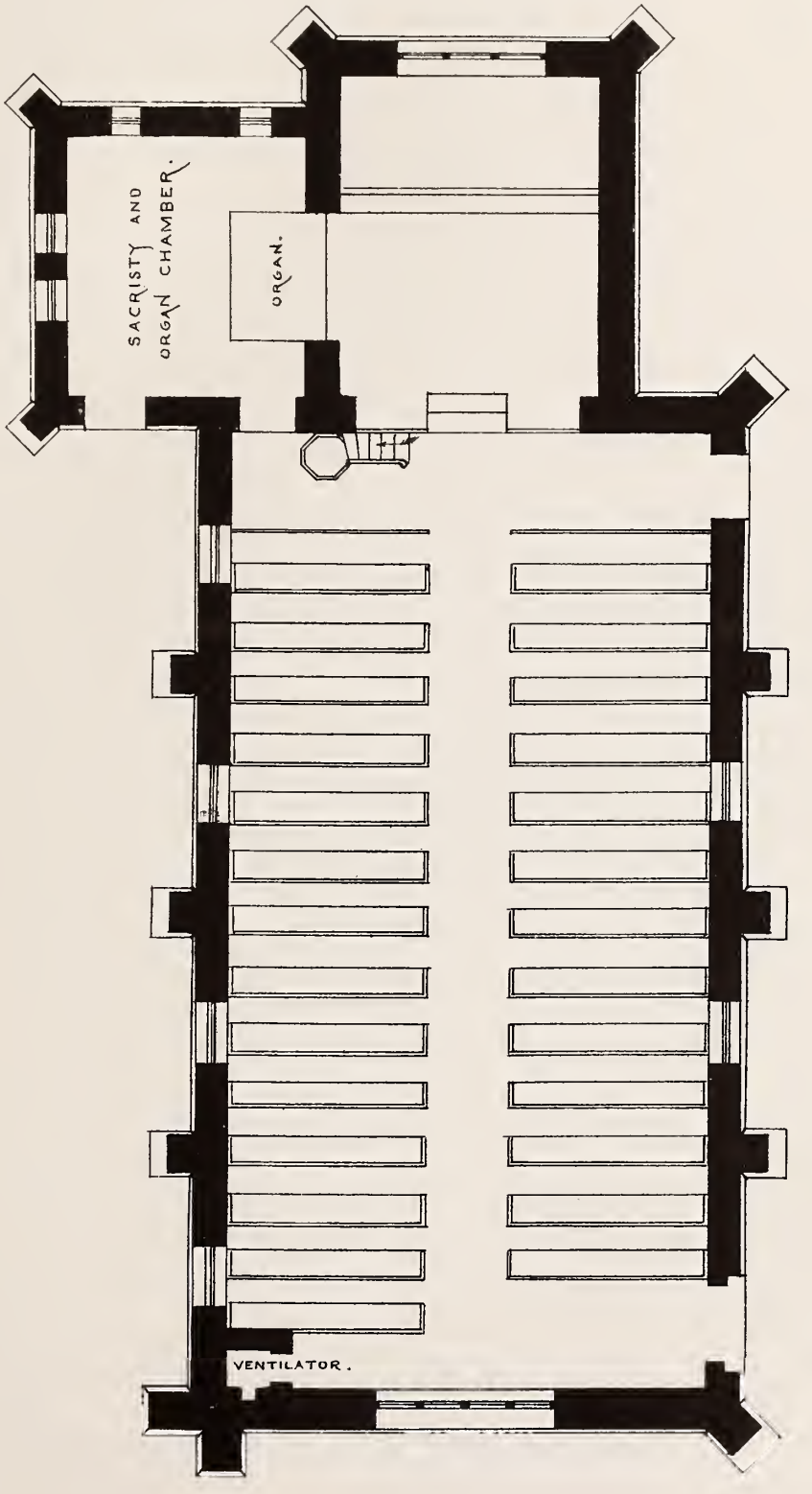
— Fig. 2 —

T. H. M. A. del.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

PLATE 2

DESIGN I.



20 15 10 5 0 5

Ground Plan.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

DESIGN I.

This design would answer either for a small parish church or a chapel. It contains something less than two hundred sittings; having but one alley through the centre, with pews on each side. The sacristy and organ-chamber are in one.

The exterior is plain in character, the walls being of rubble-work, with corners simply tooled, while the string-courses and weatherings are of freestone. The only peculiar feature is the mode of ventilation; the flue for this purpose being some two feet square, and in direct connection with smoke-flue from furnace; the warmth from which accelerates the draught, as described in Chapter III. It is carried up in stone, and surmounted by the bell-cote; grouped with which the chimney plays a conspicuous part. The bell-rope is passed down the ventilator, and is approached by a door on the ground floor.

One objection to a flue of this kind, is the fact of the large opening being exposed to the weather, and thus becoming a receptacle for rain. It would, therefore, be necessary to sink the bottom of the flue below the main floor, and have it cemented water-tight. There should also be a drain from this, to carry off any water that may enter.

The dormer windows in the roof, and the small window at top of gable, are arranged to open on swivels,—serving the double purpose of light and ventilation to the roof. The crestings and finials are of floriated iron-work, the latter assuming several varieties of the cross form, having a striking effect against the sky.

The roof is covered with purple slate, relieved by bands of a green color, cut in diamond patterns. We would usually deprecate the use of striking contrasts,—

which are so frequently carried to excess —as this, we think, gives a vulgar, flashy appearance. When contrasting colors are introduced, they should be strictly subordinated; simple bands, as in the present instance, of very quiet tints, being all that is requisite. These are also in strict unity with the wall-bands or string-courses.

In selecting slate, great care should be exercised in choosing that not liable to fade; as the fading is likely to be irregular, giving the roof, after a few years, a spotty and ragged appearance. The Pennsylvania slate is considered best for the dark varieties, while the best quarries for green slate are in Vermont. It is of great importance to secure the connections at the junction between slate and stonework, as, unless this is thoroughly done, leaking is sure to ensue. To prevent this a metal flashing should be worked between each course of slate, and built securely into the stonework.

An objection has been raised to slate, on account of its being hot in summer; but with a properly constructed roof, there need be no difficulty of this kind, for, by simply furring the slate up an inch or two from the ceiling boards, an air-space is formed in the roof, which will prove a more effectual barrier to external changes than either shingles or tin laid in the ordinary way. Add to this a covering of tarred paper, or felt placed between the ceiling boards, and furring strips, and the heat is as effectually excluded, as if there were an entire story overhead. The object of the tarring is to prevent leaks; since, though the rain cannot well penetrate the slates, yet, in driving snows, enough would be apt to find its way between the joints (which cannot be made sufficiently close to exclude a sharp drift), to cause leaks which are not apparent until the building is heated by the furnace.

Paper is well known to be one of the best non-conductors, — an expedient frequently practised by knowing travellers, when far from home, being to supply the place of a blanket by slipping a simple newspaper between the spreads,—a substitute which will be found very efficient. And the Norwegian felted boxes, in which the heat of cooked food is retained for an incredible time, are a striking evidence of the efficacy of this material, used as a non-conductor. It is a truism, that what will

exclude the heat of summer, will also prevent the penetration of cold in winter. The philosophy of this is, that a material, acting as a non-conductor, retains in cold weather the warmth within the building, and prevents its escape; acting in the same manner to exclude excessive heat in summer.

Another efficient method of accomplishing this, is to add a system of back-lathing and plaster between the rafters, thus forming, with the ceiling underneath, a double air chamber in the roof. We wish to call special notice to this subject, as the discomfort arising from the want of a little attention to it, is often of the most serious character; and the expense is so slight, that the saving in fuel for a single winter would easily make up the difference.

The subject of gutters is also of great importance. These should hang entirely out from the walls, so that, in case of leaks, the water will drop clear. This is an argument in favor of projecting eaves, instead of stone parapets, with gutters placed behind them. With the latter arrangement, the water is sure to enter the building, to the sorry disfigurement of the walls beneath. They are also in constant jeopardy, from the accidental falling of a slate cutting a hole through the metal; whereas, with projecting eaves, by hanging the gutters sufficiently low, slates or snow falling from the roof will pass entirely over, leaving them unharmed.

PLATE 3.

DESIGN 1.

— Perspective View. —

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CHAPTER III.

VENTILATION.

One of the most important matters to be considered, in the construction of a church, is the mode of heating and ventilation. It seems most extraordinary, that in the advanced state of scientific knowledge, so little attention has been paid to this subject. Our churches, and public buildings in general, have no thought whatever given to their ventilation, further than the opening and closing of windows,—an expedient usually unpopular, on account of the freezing draughts thus admitted into an over-heated atmosphere,—causing greater discomfort from direct cold, than was occasioned by the impure air; which, like other impure influences, we are too apt to tolerate, until wholesome reform, even in the shape of an open window, becomes anything but grateful to us.

It is difficult, too, with only the expedient of opening windows at our command, to regulate ventilation so that all may be satisfied. Persons used to out-door exercise, whose blood flows rapidly, and who are accustomed to fresh air, experience a sense of oppression on entering a church, and desire to have the windows raised; whereupon some hypochondriacal old gentleman, who has spent his life in hot rooms, breathing close air, and seldom venturing abroad, will instantly object—that a draught will kill him, and he prefers the air as it is. The difference in health and vitality, however, is at once manifest from the fact that the first individual enjoys a hearty appetite, sleeps well, and is a stranger to headache and other ailments, while our hypochondriac old friend is exactly the reverse, and takes cold when exposed in the slightest manner. Clearly, good ventilation and plenty of air are conducive in the highest degree to health and long life.

It is a well-known physiological fact that the body in the performance of its various functions creates a waste; and the more we exercise the greater is the waste occasioned, so that in about every seven years the whole system is, as it were, destroyed, and renewed again from the food we eat, which contains all the essential elements of our body,—bones, blood, flesh, nerves, etc.

The waste then remains to be disposed of, and this is effected through the agency of the lungs, and the action of certain excretory organs; that portion which is thrown off by the lungs is principally in the form of carbonic acid gas. This, being in a warm state, ascends; but on cooling, becomes heavier than the atmosphere, and sinks, diffusing itself with that medium. Carbonic acid gas is irrespirable, and acts in a diluted form as a narcotic poison. Even air containing one tenth of its volume of this gas, produces a marked effect on the circulation of the blood, and in sufficient quantities brings it to a stop. Any interruption of the circulation will, to a greater or less extent, interfere with every function of the body.

To the presence and narcotizing effects of this poisonous gas, we may attribute the drowsiness and heavy sleep which so frequently overcomes persons in church; such being its effect on the nerves and brain. When the air is pure, the blood circulates rapidly—we feel alert and vigorous—and a much lower temperature is sufficient to keep us comfortably warm. When the air is foul, on the contrary, the blood flows sluggishly, and a greater amount of heat is required; consequently, with every window closed, and a huge furnace in full blast, a sufficient amount of carbonic acid gas is generated to overmaster the efforts of the most powerful preacher, or the interest of the finest service, to ensure our attention.

Now there are various modes of establishing a thorough system of ventilation, in describing which we give the remarks of Mr. Lewis W. Leeds, the eminent ventilating engineer, which he has kindly furnished for this work. He says:

"In ventilating a church, one special object to be aimed at, is to produce a gentle agitation of the air, which shall be effectual in removing the exhaled breath,

while occasioning no perceptible draught in any occupied quarter of the room.

"Too much dependence should not be placed on horizontal currents, either for the supply of fresh or the removal of foul air; for supposing the fresh air to supply the twelfth person were to pass by eleven other bodies at 98°, it would then have to start quite cold, or be much warmer than agreeable by the time it reached that twelfth person. Again, suppose the exhausting flues were all on one side, or even on both sides of the audience,—to remove foul air from the centre, it would have to pass by more than half the persons present, before reaching its destination.

"The usual movement of air in a church is for that portion of the atmosphere which is cooled by the exterior walls to fall on the outside, and rise in the centre—occasioning the unpleasant cold draughts complained of so frequently.

"Now, what is wanted to remedy this, is a gentle motion of the air over the whole floor. Many attempts have been made to secure this by numerous openings, allowing warmed air to flow in; but there are practical objections to this system, and it will, therefore, be better to remove the foul air from points over the floor, which may be done with entire success.

"An important point to be observed is, that we should endeavor to imitate the action of the sun as far as possible, and heat the floor slightly in excess of the air in the room; say to 90° or 95°. This, in the first place, keeps the feet warmer than the head; and, at the same time, the air above may be kept cool and invigorating; say 50° or 55°. This difference in temperature, with the greatest heat at the bottom, causes the agitation of the air so needful to ventilation, while occasioning no perceptible draught.

"On many of the accompanying plans there is a large ventilating shaft shown, varying in size from three to five feet square. This serves the purpose of creating a forced draught, and is depended upon as the principal means to that end. Its practical working may be briefly explained as follows: Through the centre of the shaft is run in most cases the smoke-flue from the furnace, the heat of which, by rarifying the air in the large shaft, causes a strong upward current;

and this is effectual for carrying off the carbonic acid gas conveyed thereto from various points, by pipes passing beneath the floor. The ordinary small flues placed in outer walls have been carefully avoided, as they are worse than useless,—letting in cold, when they are expected to carry off foul air.

"In summer, when the external and internal air are of much the same temperature, and the furnace not in operation, it will be necessary to have a stove placed at the bottom of the shaft, as the windows are insufficient to ventilate the floor. This plan may also be adopted where it is inconvenient to arrange a smoke-flue, passing through the shaft. Where gas is supplied, it would be more convenient, perhaps, to make use of it; but the amount of gas requisite to produce the same degree of heat as a good-sized stove would cost ten or fifteen times as much, and the probable result would be an insufficient amount of gas burned to produce the desired effect.

"While I consider it very important that there should be provision made for the escape of foul air from the floor, it must not be understood that it is unnecessary to have an escape from the top also. Probably three fourths of the whole year the excess of foul air would be found near the ceiling, especially when the gas is lighted. One thing that has led to the idea that the exits must be at the floor only, is the theory that when a room is heated by pouring in currents of warmed air, if the openings be at the top, this heated, and at the same time freshest air, rises immediately and escapes there, doing but little toward warming or ventilating the apartment.

"The case is entirely different, however, when a direct warmth exists in the solid substances surrounding us. These solid bodies—otherwise the floor and outside walls—when thus heated give off their heat, both by direct radiation and direct contact, for which reason the fresh air entering may be cooler than the temperature of the room, and would flow under the warmer and fouler air that had been longer used, which would then ascend and require that an escape should be provided at the top as well as at the bottom.

"In view of these considerations, I think the great object to be attained is warmth thoroughly diffused over the floors and exterior walls, — steam-pipes being one of the best methods of attaining this, and next to these, a hot-air furnace. These pipes should run under the floor and behind the wainscoting, with a supply of fresh air let in over them, directly from the exterior. The fires should be made not immediately before service-time, thus pouring into the lungs a flood of intensely heated air, highly injurious to breathe, while the floors and walls remain cold, but sufficiently early to admit of all the solid parts of the building being heated to 80° or 90°, some time previous to the assembling of the congregation. This object attained, the fire should be diminished, so as merely to temper the air thrown in while the church is occupied. The evil effects of breathing overheated air are not generally realized, yet a little observation will soon convince us that the Creator has for some wise purpose made the temperature of our bodies several degrees higher than the air with which we are usually surrounded, and when we violate this provision so far as to live in an atmosphere more nearly the temperature of our bodies injury to health must ensue.

"Of course it is quite necessary, or at all events convenient and pleasant, in many cases, to have a considerable degree of artificial heat; but we shall find it much more conducive to health to be warmed by the direct rays from some heated body, and let the air with which we are surrounded and which we inhale, be cool and invigorating."

CHAPTER IV.

AGAINST SHAMS.

We have long had next our heart the desire to enter an earnest protest against the various shams and falsities of construction which so abound in our midst, well nigh to the destruction of anything like purity of style, or even truthfulness in the material employed. And this is one of the main objections to classic architecture as opposed to Gothic,—that its very method of construction is a contradiction to the massive blocks of stone or marble, of which its walls are formed.

Vitruvius tells us that the Greeks originally built their houses and temples of trunks of trees, with lintels or breast-summers laid across the tops, and rafters again resting on these; and when the building material was changed to stone, the same method was employed; nor was the true principle of stone construction discovered until the Gothic builders, abandoning the lintel, substituted the arch, which embodies its very essence; its *voussoirs* being so many wedges, whose strength an excess of superincumbent weight augments rather than impairs, while the Greek lintel, depending solely on the adhesiveness of its particles, stands in danger of yielding to the superimposed weight just in proportion to the brittle quality of the stone employed. A wooden lintel has an elasticity of its own; so that a weight sufficient to spring it, causes it to yield; whereas, the slightest spring in stone is liable to break it. It follows, then, that a classic building in stone is, in one sense, a thorough violation of the laws of stability. And yet, with us, this lintel style of building has been employed to the exclusion of everything Gothic; especially in our cities, where, in both private and public buildings, stone columns, supporting hori-

zontal cornices, and square-headed lintel windows, are universally the rule.

It may be curious and interesting to observe *en passant* some attempts of our would-be classic architects to reconcile the antagonistic properties of the lintel and arch, the principles of which latter they have failed most lamentably to appreciate. Take, for example, a certain marble banking building in our metropolis, usually considered the height of perfection, but which is, in fact, a volume of inconsistencies and errors. An imposing arched window is introduced on either side of the entrance, but so slight appears the architect's faith in the strength of his arch, that he must needs place a column directly under the keystone, as though the weight of the opening above might possibly drive this wedge-shaped stone through! But not only is this an absurdity in an esthetic point of view, it practically constitutes a weakness; for should any settlement take place in the piers, this column, by preventing the corresponding settlement of the keystone, might eventually drive it upward, and thus endanger the safety of the building.

In another instance, that of a theatre, built by the same architect, our artist seems to have gone to the opposite extreme; and, instead of doubting the strength of his arches, has, by the removal of the pillars directly in front of the entrance, left some of them suspended in the air! It is true the building is virtually strong enough,—its material being iron, and the arcade nothing more than an iron lintel,—but the absurdity cannot be too strongly insisted upon of using stone detail, treated in a manner which would be impossible were stone actually to be employed.

These suspended arches are a favorite device for marking the division between long parlors, having only the cohesion of the plaster of which they are composed, to hold them in place. However incorrect this may appear in a dwelling, it is certainly a most wretched device when used in place of a proper chancel arch, of which practice, we regret to say, instances are not wanting.

We heard, not long ago, of a certain Presbyterian church, newly erected, whose congregation were in ecstacies over the brilliant achievement of having, at last, got a house of worship with Gothic

nave, and aisles, and groined roof (plaster, of course), minus those inconvenient columns which interfere so much with the view of the pulpit Boanerges. This wonderful result was accomplished by cutting the pillars short off, within some ten feet of the floor, and leaving them hanging from the ceiling, their ends being finished by acorn pendants! The effect must have been truly sublime.

There are two forms of error in construction, which are equally wrong, *e. g.*, the translating of stone detail into wood, and wood into stone. We may instance the working of wood into arches—a form for which it is utterly unsuited—wooden panels filled in with arched tracery, and the would-be constructional roofs, their inter-spaces filled up with unmeaning wooden arched-work. All of these go far to debase the dignity of otherwise noble wood construction. Then again, how often do we see panelling in stone surfaces; a mode of treatment positively opposed to reason and common sense; for it is evident that this panelling has been adopted of necessity in wood,—a material liable to suffer from the action of heat and damp—as a means of obviating in part the warping, shrinking and swelling of its fibres.

Take a door for example. It is composed of a plank frame, sufficiently narrow to be but little affected by the above causes, with wider openings, filled in with thin boards. These, to secure them in their places, are let into grooves in the framework, without gluing, so that in shrinking, they may have sufficient play, without showing an open joint. But to imitate this construction in stone, which is already free from the liability to shrink, seems absurd in the extreme. It may be well to decorate blank spaces, but instead of imitating the renaissance blunder of stone panelling, incised lines of graceful design may be most appropriately employed; while openings in woodwork requiring to be relieved, instead of being ornamented with shafts and arches on a small scale (which would be translating stone details into wood), may be filled in with some of those floriated patterns so appropriate to Gothic treatment. These are pierced through a plank of suitable thickness, and are commonly termed scroll-work. Better still would be some geometrical figure, such as the star, quatre-

foil, or other symbolic form. In cases where shafts and arches have heretofore been employed in order to carry out the semblance of strength, upright pieces and struts, or brackets, may be used; the uprights taking the place of columns, and the struts that of arches. By this treatment we obtain an equally agreeable effect, and in no way depart from the true principles of wood construction.

The renaissance school seeks to conceal construction, while in Gothic, construction is made ornamental; a vital and most essential point of difference. Let us take, for example, St. Paul's cathedral in London. Here is the same mode of support resorted to as in the neighboring cathedral of Westminster, to overcome the lateral thrust of its vaulted ceilings, but how differently treated! In the latter the airy forms and graceful outlines of the flying buttresses add greatly to the beauty of the building; in St. Paul's the same flying buttresses are employed, but, as though they were a dreadful deformity, are concealed by an enormous screen entirely surrounding the building! Thus one half of the edifice has been erected in order to hide the other! In the dome too the same absurd method has prevailed; for instead of the real height appearing from within, a lower dome has been made to cover the construction of the upper. Of a kind with these falsities is the tacking up of a flat plaster ceiling in a church; so inferior to the grand open timber roofs of the Gothic school, where the very ends of the beams are exquisitely carved, and the intricate system of support is made a source of beauty.

One peculiarity in Gothic is its entire adaptability to every want of the design. Uniformity and regularity should be strenuously avoided. It is never required that every window must be alike, or that a door should be introduced on one side, for the very sagacious reason that there is a door on the other; a principle carried to such an extent by the renaissance school that false doors and windows are used in order to perpetuate a monotonous balance of parts. A fundamental rule of Gothic is that there shall be nothing unnecessary or unconstructional, and nothing put to any false use. What can be more absurd than running chimneys into finials and turrets, or twisting them in order to bring them out on a ridge, or other uniform

position? If a chimney be necessary, let it honestly show as a chimney, for anything that is useful may be made ornamental in Gothic architecture.

The system, too, of employing ornament simply as ornament, is most erroneous; such as inserting niches with no statues to fill them, windows which give no light, mouldings with no meaning or adaptability to their position, and crowning absurdity of all, wooden buttresses on a miniature scale adorning tabernacle work, pew ends, and organ-cases indiscriminately. How often too in stained glass do we see this feature introduced as a mere marginal ornament—placed against a mullion, which certainly does not occasion sufficient lateral thrust to require a support of such herculean powers.

Even wooden buttresses are, however, hardly so absurd as the wooden battlements of which some of our older architects were so fond. Battlements, originally intended as a means of defence, are as obsolete and useless at the present day as the feudal castle with moat and drawbridge which they once surmounted. But to crown with these adjuncts of war and discord the walls of a church, even though it be the Church Militant, is as ridiculous as though we were to understand by "putting on the whole armor of Christ," arraying ourselves in actual coats of mail. Worst of all is it to see these presumably massy defenses, their size reduced to inches when their prototypes may be measured by feet, placed *inside* the church; reminding one of the famous general who threw his embankments on the wrong side of the ditch.

Another instance of detail in a wrong place is the presence of drip mouldings, intended to shed water, inside a building; where they can surely be of no possible use when the roof is tight. And yet we see wooden and plaster tables and drip mouldings used continually inside our churches, and with as much ostentatious display as though either of them had any meaning or use.

And here we may instance a remark of Mr. Ruskin's with reference to appropriate ornament. He says: "The especial condition of true ornament is that it be beautiful in its place and nowhere else; and that it aid the effect of every part of the building over which it has influence; that it does not by its richness

make other parts bald, or by its delicacy make other parts coarse. Every one of its qualities has reference to its place and use; and it is fitted for its service by what would be faults and blemishes if it had no special duty." Yet ornaments and emblems are frequently applied apparently at random, under the stupid idea that they "look pretty" and "help to fill up." As if anything could be beautiful or admirable out of its proper place! It is the old fable of the donkey and the lap-dog over again. We have seen much the same remarks as those of Mr. Ruskin applied to secular buildings. The writer says:

"Congruity and incongruity seem no more to affect many architects than they do Mumbo Jumbo, or the King of the Madingoes. King Pepple or Lord Wellington will put on a footman's livery and a general's cocked hat, and dispense with breeches and boots, and so an architect will lay hold of any little bit of decoration to be found in the market ready made to order, or will design what may in itself be a good idea, and stick it on regardless of consequences, to the great bewilderment of the admiring spectator. A fine range of offices recently struck my eye, in which on the left of the façade a colossal bull's head presided over a cordon of fruits and flowers, of more than prize proportions, and on the right a ram's head did similar duty. Now what do these emblems mean? The owners of the property are not Messrs. Bull and Ram; it is not intended for a shambles nor a general meat market; nor is it a leather dealer's, or near one. It is possible the building was begun when the sun was in Taurus, and completed when he was in Aries, in so few months are great piles like this run up now-a-days. The bull does not allude to the Stock Exchange, for the house is not near enough to where stockbrokers 'most do congregate'; besides, the other effigy is not a bear, and there are no lame ducks. It is not a public-house called the Bull and Ram, nor is it likely to be turned into an hostelry. It would be curious to know what other heads will adorn the block if this style of decoration be continued."

Following in the footsteps of these false principles of construction, come the numerous family of shams; which, absurd as they are in civic buildings, become

almost sacrilegious when employed in a church dedicated to the worship of the God of Truth, and which should consequently itself be the embodiment of truth.

One instance of sham which must have frequently struck the reader's notice, is where some building committee, anxious to make an external show on small means, carry the front gable of their church far above the actual roof of the building. In fact, however, they could have adopted no better means of displaying their lack of funds; for the moment we turn a corner the failure of the roof to meet this pretentious gable is at once apparent.

Then again, there is the sham of sanding and blocking off brick or plaster to represent stone; a practice as reprehensible as it is inexcusable. If the building is of brick, let it show brick honestly; if the walls are plaster, why there is nothing dishonorable in plaster, to say nothing of the many correct and really beautiful modes of decorating such walls. So, too, with the woodwork; which it is equally false and useless to disguise with graining which deceives nobody. If we cannot afford an expensive material, plain deal or pine, honestly treated, may produce a highly agreeable effect.

A truly laughable device is the imitation groined roofs made of plaster which we sometimes meet with even in buildings of very fair pretensions. These supposititious masses of stone can be compared to nothing so aptly as to Chinese forts of canvas, painted in the semblance of granite blocks, and bristling with wooden guns, which are confidently expected to strike such terror to the hearts of the enemy, that they will never dream of attacking so formidable a defence. Of course the buildings endowed with these ponderous ceilings are plentifully gifted with buttresses of the most massive description, without which the roof might appear in danger of falling on the heads of those below!

One more, and perhaps the grossest of the shams that have crept into church architecture, is the coloring of walls and ceilings to represent elaborate mouldings and carvings, columns and arches, adorned with crockets and ornamental finials. We have seen recesses, or even chancels, depicted in perspective on the flat eastern wall, with about as much effect of reality

as the scene painting of our provincial stage; and in many instances, on all four sides of the tower of a country church, four imitation clock-faces with hands everlastingly pointing to the same hour and minute, as though Time itself had been brought to a stand still! We may be allowed to remark that a church clock is the one above all others to which we would look for the true time, and seeing such a lamentable instance of sham as that we have mentioned above, our first impulse would be to conclude that very little of any kind of truth or sincerity was to be found in *that* church.

We chanced the other day to come across a description of a certain church built some years ago, which struck us as such an agglomeration of bad architecture and shams of all kinds, that we give its substance below, as strikingly adapted to exemplify the fraud and neglect of ecclesiology which so militate against true art:

"—— Church is of brick, with very thin walls, painted brown, blocked off and sanded. It is cruciform in plan, and so low, the tower included, as hardly to meet the tops of the neighboring houses. The whole expression is 'the church crushed down by the world.' Orientation is reversed.

"In the interior there is a very shallow chancel of one bay; the altar, the poorest piece of furniture in the church, being painted white, and resting without step or dais directly on the floor. There is a small lectern very like a music-stand, and a low reredos which shows some rich carving in black walnut. The pulpit is of black walnut, with some very good carved enrichment around the top. This carved work is made of *cement*, painted; as is also the carved work of the reredos. The font is an old garden vase, with a rotary top, placed near the north pier of the chancel. The chancel window is of five bays—in the centre is a very dingy dove, surrounded by radiating yellow. The light from this window in the afternoon was so overpowering that it has been covered outside with heavy white canvas. (If Orientation had been observed this light would have been at the back of the congregation and given no trouble; a practical reason for its use which may convince those who would object to it on purely *symbolic* grounds.) The west window has, like that in the chancel, five

bays. It is crossed by a heavy organ gallery, which cuts off all but about a foot of the window lights; besides which, the whole of the upper part will be either blocked up by the organ or boarded over. The frame of the gallery has shrunk so much that there is already danger of a gap between it and the wall. The transept windows are of four lights, and the rest of the windows of two lights each, all flamboyant, the tracery of pine, painted brown and sanded. The piers are of wood coated with plaster to look like cluster shafts of stone, and to complete the deception they have rich floriated capitals—of cement. The responds do not even enclose a wooden beam, but are of lath and plaster, supported on segments of inch board, tacked to the wall by a couple of nails. These likewise have floriated capitals of cement. The nave roof is open, the principal rafters of nave and transept bound together by an arch of good span but weak construction, the interval between the arch and rafter being filled with complicated flamboyant tracery cut from two inch plank. We suspect the existence somewhere of concealed iron rods. The aisles have apparently low double roofs, but the inner half of them is false; they are in reality lean-to's. The whole roof is of pine grained to imitate oak. The plaster finish of the walls is lined and colored to imitate stone. The sacristy seems to have been an afterthought, only erected when the rest of the building was finished; for it blocks up the lower half of two windows in a very unsightly way.

"The outside of this church presents one singular feature. On the front of the south transept are a couple of buttresses which have no lower parts at all, but spring out from the wall at the place where they would in ordinary cases have had a set-off. As the fence runs close up against the church in this place, we can only suppose it was considered that this remarkable piece of construction would never be noticed.

"The church was built as a free chapel for the poor; but as the neighborhood has but few poor the plan has been changed, and though still retaining the name of *free* church of ——, the pews are sold or rented. There is no alms-chest by the door, but instead there is a plan of pews with the tariff only attached

to each. It is a pity the architect would not rise to the discovery that there is some higher principle in church architecture than merely producing the greatest possible show at the smallest possible expense. The money laid out on this building, if expended on honest and appropriate architecture, instead of shams, would have produced a building worthy the service of the God of truth, and far better in its effect upon the mind and heart of man."

It may be said by some, "But where is the harm of all this? It pleases the public—so why condemn it?" Herein lies the harm: in the debasing and falsely educating public taste. Every structure that is built upon other than honest principles, does just so much toward confirming a low standard of excellence and retarding the progress of true art; and every architect who consents to falsities of this kind commits a sin for which he is answerable to generations to come. It is just because people are so thoroughly imbued with these debased ideas, that so many expensive edifices are erected of a character thoroughly unworthy their object; and why frequently the most lovely designs, emanating from the highest talent in the profession, are discarded for miserable abortions, the productions of mere tyros. We remember hearing it said by one of the most eminent architects in the country, in commenting on his success in an important competition, that he had gained it only by making his design as bad as it could well be. With great ingenuity, after he had secured the business, he contrived to substitute for his premium design one of high architectural merit; and he finally produced a building so creditable that had it originally been offered in competition it would certainly have been rejected as too entirely ridiculous for the consideration of the intelligent (?) building committee. But our artist knew too well the quality of the men he would have to deal with to throw his pearls only to be trodden under foot, and deluded the committee to their own good accordingly. It is saddening, however, to think of the state of ignorance on art matters in which such an affair as we have just described could be possible. This experience, extraordinary as it may seem, is being repeated time after time every year; all owing the familiarity of

bad architecture to the public eye, and the novelty and (apparent) singularity of that which is good; more particularly in this country. In England, and on the continent, if designs are offered in competition, almost universally the best is accepted; for there, good architecture is the rule, and public taste is educated accordingly. As a general thing, experts are called in to give an opinion, which is always respected, and in the majority of cases acted upon. But with us, if deference is paid to the opinion of *any one* it is to that of some successful bricklayer or "boss" carpenter. Such are the authorities to whom our solid men are wont to refer on disputed points of esthetics.

Frequently, too, in the event of a first-class man being employed, his design is so interfered with by ignorant building committees that the entire spirit is unavoidably lost; and the design is usually accepted under conditions which, if complied with, are sure to destroy some of the architect's ablest efforts. We could cite numerous instances of this, but will take the experience of Mr. Blomfield as a fair specimen. His design for a new chancel to a certain church in England having been accepted, the parish instantly proceeded to saddle him with a string of conditions, as follows:

"The committee approves of the plans now submitted for altering the parish church, subject to the following amendments:

"1. That there is to be no elevation of the communion table by means of steps.

"2. Nor any elevation of the chancel floor as now existing.

"3. The screen as shown is to be omitted.

"4. That no decoration shall be introduced without consultation with the churchwardens and parishioners.

"5. And that the plans and specifications be submitted to the churchwardens."

To this impertinent interference the architect very properly replied:

"I may as well say at once that it would be quite impossible for me to proceed with the work in accordance with these resolutions. I may particularly specify Nos. 1, 2, and 3. To say nothing of my own reputation as a church architect, which would naturally suffer when the work was done, and the blunders

apparent, I am sure such a plan would never receive the approbation of the bishop, nor should I like to ask it.

"Nos. 4 and 5 I have no objection to, but Nos. 1, 2, and 3, so completely upset the possibility of a proper or even decent arrangement of choir and chancel, that if insisted on I must decline having anything more to do with the work."

But it is not alone in competitions or under direction of committees that this sort of interference is exercised, and ignorance shown. It is not one time in twenty that we find our wealthy citizens, in improving their private property, employing the best architects. Instead of this, orders for expensive and would-be elegant houses are given to men held in so low estimation by the intelligent members of the profession, that many of them have tried in vain to gain admittance into the Institute, and have been rejected as not possessing the first qualifications of true architects.

But the time must come when a great awakening will take place in the public mind, and it will be generally appreciated that without truth and purity of intention in the design, beauty is not possible. Overloading a plain or a weak design with much meretricious ornament does not mitigate its defects; on the contrary, it makes them more apparent. Because a man has a warehouse to build—and a warehouse pure and simple is decidedly an inartistic object—he must not therefore set to work to make it resemble externally a ducal palace, or an edifice of great civic importance. The ornaments prescribed by truth would be those befitting the purpose of the building and the uses to which it was to be applied; but it would not allow the enrichment of a plain mass with a view to raise it to the pitch of beauty possessed by a building of more elaborate figure.

The works of the thirteenth century are eminently truthful in intention. They tell the story of their use without disguise or prevarication. They do not seek to appear more noble or higher in the scale of beauty than they are placed as respects the arrangement, configuration and balance of the masses of which they are composed. Simplicity and truth are characteristics of a style which all accept as thoroughly honest, and preëminently consistent and appropriate.

Thus much for correctness in building. And now as to shams—those arch-enemies of true art—what shall be said? What *can* be said but that they deserve to be banished to that limbo where (let us hope) they will one day be sunk by mutual consent of all civilized peoples. It surely is not too much to hope that a day will come when plaster capitals and wooden tracery will be felt as unworthy substitutes for genuine art as the glass beads of a savage to replace priceless jewels; and their employment as repugnant to good taste and high feeling as the wearing of paste-diamonds would be. The temper of mankind cannot surely have so entirely changed since the thirteenth century that there is no hope of good work ever being appreciated—and the artist who works for the advancement of the art that he loves will as surely win in the end, as falsities and improprieties must finally sink into the contempt which alone they merit.

In conclusion we quote the words of a well-known writer, speaking of the necessity of honesty in every department of art:

"The principle which artists now have mainly to contend for, is that of Truth, —forgotten, trodden under foot, and hated for ages; this must be their watchword. If they be architects, let them remember how vitally necessary it is to any permanent success in even the smallest of their works; or sculptors, let them recall how vain and unsatisfactory has been the abandonment of truth in their attempts to revive among us what in classic times were real representations, and natural works of art, but which are so no longer; if painters, let them consider the importance of truth in their delineations of natural forms, if they are ever to create a school of art by which they may be remembered.

"Finally, I wish that all artists would bear in mind the great fact, which separates even the best of them by so wide a gap from the architects, sculptors, and painters of old,—their earnestness, and thorough self-sacrifice in the pursuit of art and the exaltation of religion. They were men who had a living faith, and hearts bent on its propagation; and had it not been for this, their works would never have had the vigor and freshness which even now they retain so remarkably.

"Why should we not, three centuries hence, be equally remembered? Have we less to contend for than they because we live in later days? Or, is it true that the temper of man has changed—and with it the vocation of art? Is it true that the painter must now content himself with limning the portraits of the rich and noble, and occasionally those of their dogs and horses; the sculptor with carving busts of his patrons, while the architect's highest aim is to build palaces, wherein they may indulge every extreme of luxury? Is not the truth rather that the artistic vocation, now as ever, should lead, and not follow, the stream—to show the world that there may still be elements of the sublime about men's works even in the midst of effeminate luxury—and that art, rising even from the deadliest sleep, can once more buckle on her armor, and full of the generous spirit of old, breast all difficulties and surmount all opposition;—with the one aim to do all she does in faith, truth ever before her eyes and manifest in all her works?

DESIGN II.

The accompanying design was intended for a parish just started in one of the manufacturing districts of Pennsylvania. The object of the members was to begin in a small way, by simply erecting a nave, as shown in plan No. 1, hoping that God would hear their prayers, and send them means to add transepts and a chancel; together with a tower and vestry-room. This first plan, however, by no means presents an unchurchly appearance. The choir and sanctuary, situated at the east end of the nave, are flanked by open screens of good design, executed in chestnut. The organ occupies one side of this, and the sacristy the other.

The chancel furniture, it was determined, should be of materials and design suitable for the future enlarged edifice; and the windows were also as handsome as could be afforded, with the same view. And in order that nothing might be wasted, the bell-cote was to be removed, and placed upon the tower when erected.

The roof is of an open timber character, the rafters and trusses splayed, and showing a pleasing wood construction. The number of sittings in the first plan was about two hundred and twenty, while on the second, they will be increased to some three hundred and fifty.

PLATE 4

DESIGN 2

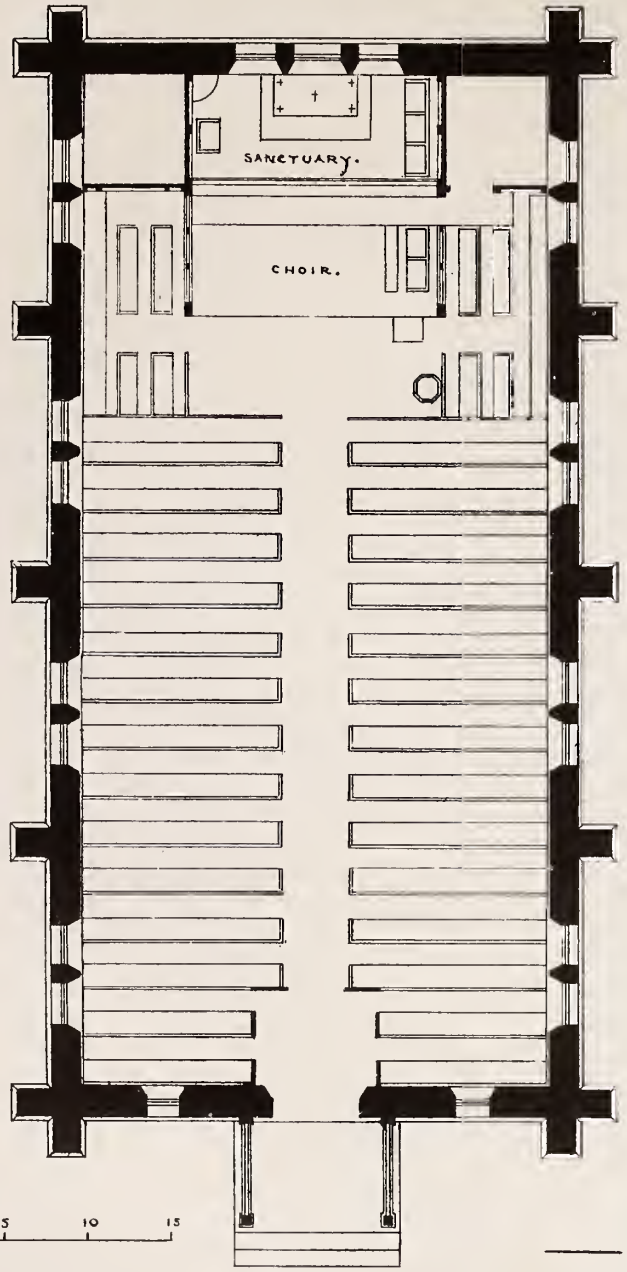


FIG. 1

Ground Plans.

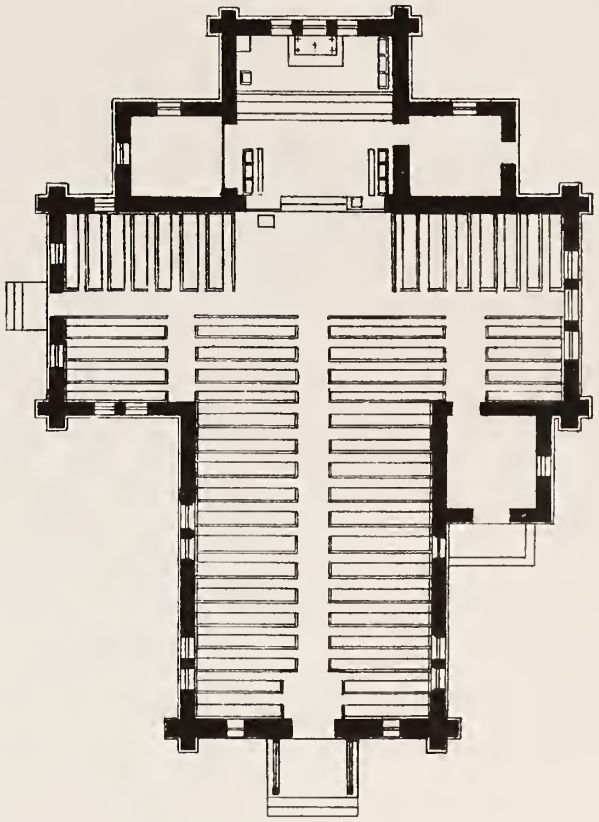


FIG. 2

AM PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

PLATE 5

DESIGN 2

FIG. 1

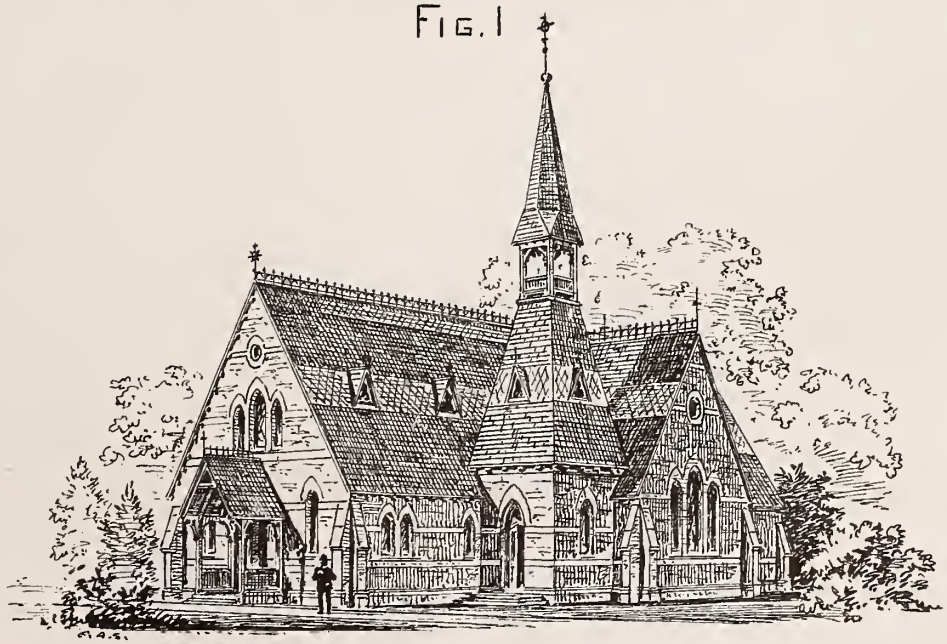


FIG. 2

AM. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNE'S SUCCESS

CHAPTER V.

A FEW WORDS ON SMALL BEGINNINGS.

Our readers may, perhaps, be surprised that we should advocate the building of wooden churches, after what we have said against reproducing in this material forms originally intended for stone, but as will be seen, by reference to the following design, it is quite possible to build a Gothic church of wood, without, in any case, departing from the treatment suitable to a timber construction. And we cannot but think there are many cases wherein wood may be used with greater propriety than brick or stone; for instance, in a small, struggling parish in the West or South. Here it would surely be far better to erect a simple timber church, the material for which is close at hand, than to transport brick or stone from a distance, at great expense, and run in debt to put up a costly structure in the first instance. Even if the parish succeed in furnishing this, they will probably not be able to do so in genuine material throughout; and so all sorts of paint and plaster shams will inevitably be introduced—every one of which detracts just so much from the architectural character of the building, and, in the end, costs as much, or more, than honest work would have done. But if the more sensible, if less ambitious, plan is pursued, and truly ecclesiastical structures be built, albeit only of pine plank, they will be certain to prove satisfactory.

And let no little band of Christ's people become discouraged, because they are so few or so poor, from making an effort to get something like a place of worship. With a little assistance and advice they might even with their own hands do all that was necessary for a commencement. For instance, let us take the case of a newly-started mission in the "wilds of New Jersey." The only place that could

be had for the services was an "upper chamber," simply furnished as a lecture-room, with a reading desk and a few forms. But as the number of Church members increased, it was thought best to celebrate the Holy Communion there instead of going to the parent church of M——. Then, of course, some different arrangements had to be made. They had only ninety dollars on hand, but determined to do the best they could with that. The first thing was to raise a platform twelve inches high across the end of the room, extending out some twelve feet; and upon this was raised a platform, or dais, for the altar. The latter took half the money (forty-five dollars); but it was determined to have an altar at least which could be used in the future church. It was five feet long by two and a half wide, of solid oak, simply ornamented on the front with a Greek cross within a circle. The slab of dove-colored marble, marked with the five symbolic crosses, had an excellent effect. There was also a prothesis, or credence, in the form of a shelf supported on brackets. On one side of the lower platform was placed a low desk facing across the extempore chancel, from which prayers were read, and behind this a stall-like seat, large enough for two. On the other side was placed a lectern from which the Lessons were read, and which also served for preaching; and, lastly, the whole space was divided off by a solid railing.

Now, all this furniture, simply made of pine, stained and varnished, twenty-one feet of railing, desk, stall, lectern, and prothesis, cost but thirty-four dollars; showing that church fittings can be had correct, yet inexpensive. (These prices, however, are ante-war.)

Still another case was that of a new mission in New Jersey, where not even a barn could be found which might be fitted up for the services of the Church. Still full of faith, the missionaries hoped to interest some one in their work, and it seemed as though God was working with them; for the first day on which they commenced making inquiries, the first person they met offered them a beautiful site for a church in the outskirts of the village, together with twenty-five dollars to assist in its erection. The next person offered fifty dollars, the next twenty; and so on, till, in the space of two hours,

a site had been obtained, and two hundred dollars subscribed. On leaving the village, quite a number of the inhabitants assembled; and insisted on firing off an old cannon in honor of what had been done; after which the priest ascended the cannon, made some appropriate remarks, with respect to his being a soldier of the Prince of Peace, blessed the people, and departed. Before long the two hundred dollars were increased to ten hundred; plans were prepared, and the work commenced. All the stone for the foundation was carted by the people themselves; one young farmer declaring that his team should not be taken off until the work was finished.

The cost of this church did not exceed twelve hundred dollars; yet all was well, and, what is better, *correctly* done. The material was, of course, wood—triangular heads being adopted for the windows, as being more true to the material than the arch form. The chancel was fitted up with appropriate furniture, and the font placed near the western entrance. We merely mention these cases as showing what may be done, rightly and well, on small means; and how entirely without excuse it is, for even the poorest or most thinly settled place, to be without a church.

There is also this advantage about a wooden church, that it can be readily altered and enlarged, should circumstances require it. We have frequently seen such a building cut in two in the centre, and one or two extra bays inserted, while the chancel was left undisturbed. By this device a half or a third more sittings may be obtained.

We are at present engaged on the enlargement of a wooden church, by the addition of lean-to transepts, which had previously been altered in the manner above described; and should it be required, the transepts can at any time be extended into aisles; in fact there is scarcely any limit to the extent of the alterations that may be effected. It is intended in the course of time to erect a large and substantial stone church as means are forthcoming; one wing, indeed, being already completed, and now used as a Sunday School. The new windows and chancel furniture are to be used eventually in the new edifice; and so the work will go gradually on, perhaps

to be finished by another generation, but with no embarrassing and humiliating load of debt incurred, which must, in a great measure, detract from the church's usefulness.

Although, in erecting a wooden church, it may be the intention to supplant it by one of more expensive material, yet it is well known that many of these have stood to a great age, while still in perfect preservation. We may remark, in this country, St. James's, Newtown, Long Island, which is nearly one hundred and fifty years old, and another, also on Long Island, built in 1720, which, with ordinary care, is thought certain to last fifty years longer. But in England, in the town of Greensted, Essex, there is a small wooden church, built of half-logs of oak, with the bark on, which dates from the year 1013. This building was lately restored; and not a single entire log was condemned; only the sills and butt-ends of the uprights having decayed. The timber churches of Norway are also well known; some of which date back as far as the eleventh and twelfth centuries.

It may not be out of place, in an article on small beginnings, to suggest a way in which Communion plate may be obtained in poor parishes, where, perhaps, *pewter* vessels have been the only ones in use for this holy service. In one such parish a collection was made among the people of every scrap of worn-out and broken gold and silver; even teaspoons, small articles of jewelry and pencil-cases being thankfully received. Similar contributions were obtained from friends in every direction; and ultimately enough material was collected to make a chalice and paten, a small flagon and perforated spoon, silver-gilt, and of correct pattern; though, of course, quite plain.

Now, this we think a most excellent suggestion to be followed under similar circumstances. Of course, if larger and handsomer articles were given, so much more to the credit of the givers. Who does not think the old cavaliers noble and devoted men—who were ready even to melt up their family plate in the service of their king? How much more worthy a sacrifice would it be for Churchmen to forego the pleasure of having silver and gold to adorn their tables or persons, in order to supply God's House with the sacred vessels belonging to His

Altar, when these could not otherwise be obtained.

We once knew a most lovely and Christian young lady, the wife of a clergyman, who gladly disposed of all the silver and the India shawl given her on her marriage, in order that she might use the means thus obtained for the adornment of her husband's church; just then commencing its existence amid poverty and discouragement. Who can doubt that God looks with approval on such a spirit of self-sacrifice, so in accordance with that of the men of old, whose first thought was for the Church and her honor? Would that such examples might be multiplied throughout the length and breadth of our land.

DESIGN III.

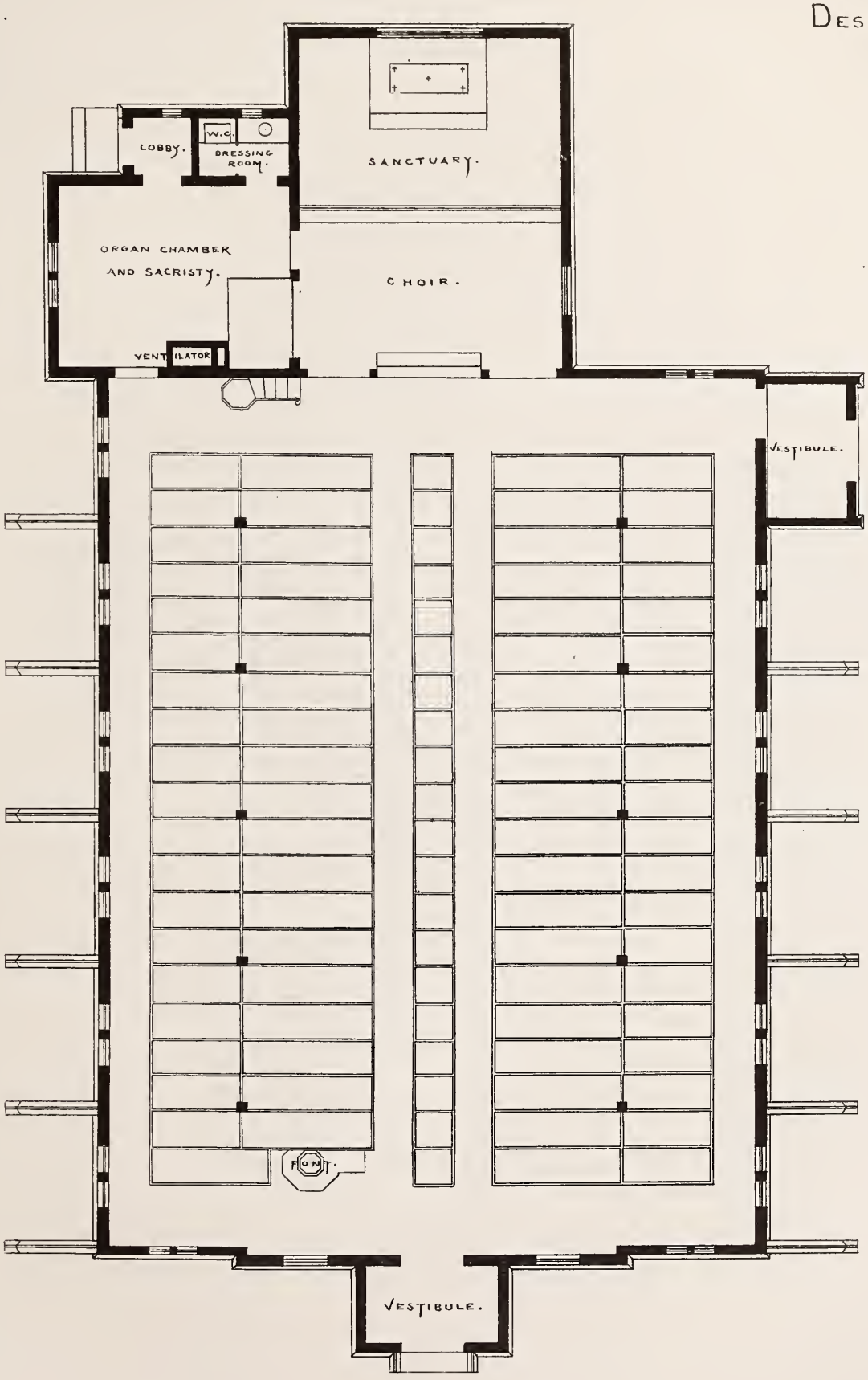
The accompanying design, which is intended for a small wooden church, contains some four hundred and fifty sittings and is well adapted for a country parish where means are limited. The style is purely Gothic, yet every particle of the treatment is true to the material; no mimicry of stone being anywhere attempted. It consists of nave and aisles, with chancel and organ chamber; the latter being sufficiently large to accommodate the sacristy. This has the usual external porch, and is fitted up with dressing-room conveniences. The roof is of high-pitch open timber character, slightly decorated, and, together with the furniture and fittings, is constructed entirely of pine, stained and oiled. This furniture is rendered in the simplest manner, its beauty depending chiefly on correct outline.

The chancel, divided into choir and sanctuary, is separated from the nave by a rood-screen, which is formed in the following manner: A support being required for the belfry, placed directly over the chancel arch, the foundation wall is carried along between nave and chancel, and on it are raised two posts, dividing the arch into three spaces. Upon these posts rests a tie-beam, on a level with the wall-plate, and over this again are two timbers, in the form of a St. Andrew's cross—the ends butting against the principals of nave roof. Here there is a second tie-beam, which being above chancel arch, is not visible, and over this again, two cross timbers. The side divisions on floor, caused by the uprights, are filled in with wrought metal screen-work of graceful design, and the centre with metal gates—all of a character sufficiently open not to obstruct the view, and richly decorated in polychrome.

The pews are arranged with a view to free sittings, especially the forms located in the centre alley, which, being

PLATE 6.

DESIGN 3.



GROUND PLAN.

0 10 30 30

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

movable, can readily be put aside, in case of processional ceremonies, weddings, and funerals, leaving a passage of extra width. The font is placed at the western entrance; it being thought unnecessary in a church of these pretensions to have a separate baptistery.

The church is simply lighted by mullion windows along the aisles, and three six-light gablets above. The clere-story is perforated by quatre-foils in the interspaces. The object of introducing the horizontal transom in the gable windows is in order that the main roof-plate may be continuous, as the cutting of this member would greatly weaken the building.

Ventilation is amply provided by means of the large flue shown in sacristy. This is warmed in winter (to accelerate the passage of foul air), through its contiguity to the smoke-flue from the furnace. Both these are carried above the roof, as shown, the smoke-flue being carried somewhat higher than the ventilator, giving emphasis and distinction to the former, and likewise dispersing the smoke at a greater elevation.

One peculiar feature in this design is the mode of resisting the lateral thrust of the roof; a difficult matter with timber walls, which offer so much less resistance than stone. This is done by bracing the main posts at points between the bays, with strong diagonal timbers projecting some eight feet beyond the walls, their ends resting on stone foundations which amply secure them against the ground. These timbers are cased, and their tops covered by wooden weatherings, giving much the appearance of flying buttresses, while at the same time their motive is purely a timber construction. By being placed higher up they might be a continuation of the principal rafters of aisle roof, and thus be of a simpler, though less effective character.

The roof may be covered with either shingles or slate.

We think a wooden clere-story objectionable when applied to a stone church as not being true to the material mainly employed; but in an edifice of this description, a timber clere-story, treated in a suitable manner, is highly appropriate.

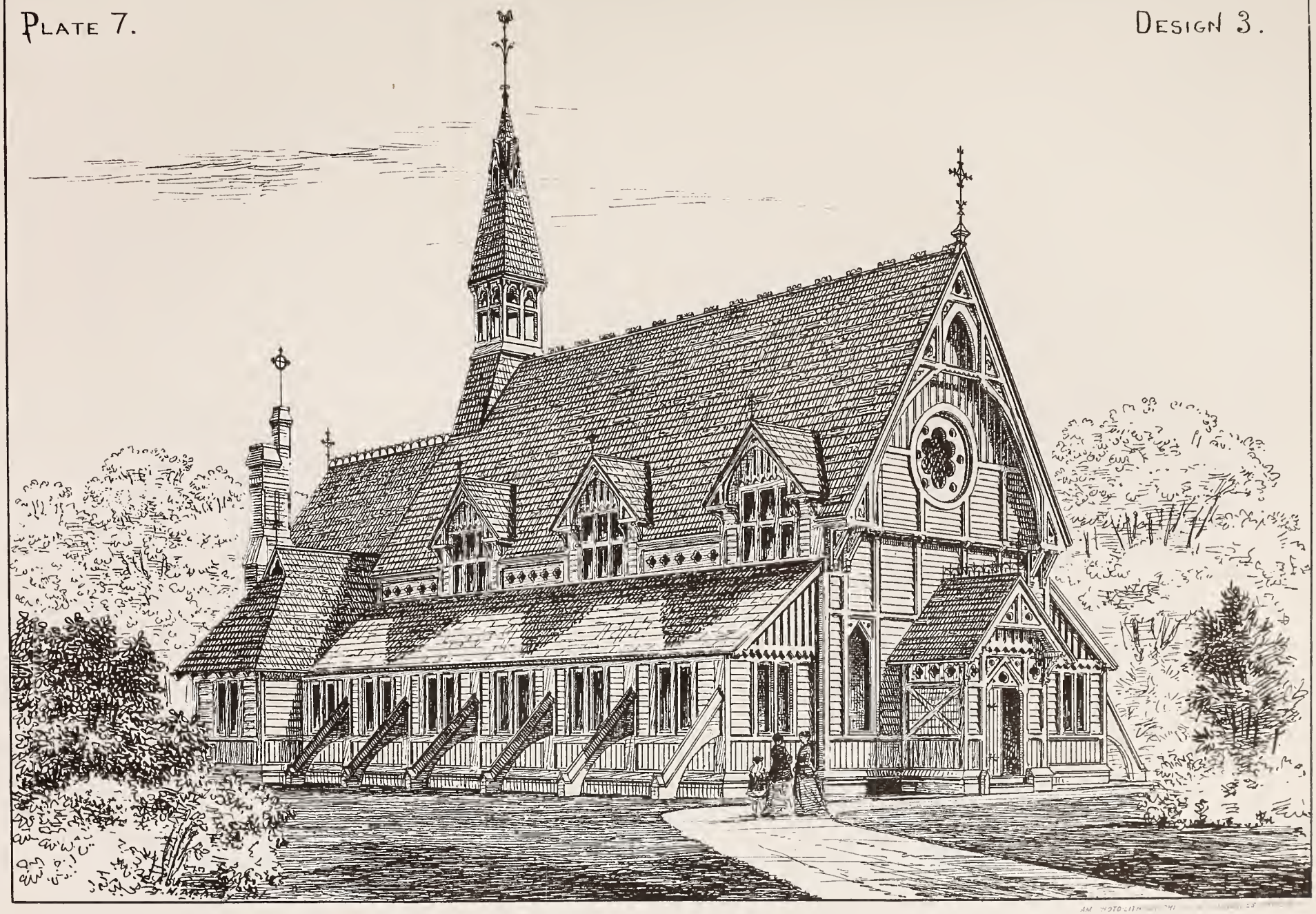
CHAPTER VI.

CHURCH SITE AND SURROUNDINGS.

The site of a church, more than any other building, ought surely to be now, as in ancient times, the subject of earnest consideration and thoughtful choice. Not but that the house of God equally commands our reverence in whatever spot we may find it; but a due regard to surroundings certainly has somewhat to do with the emotions it awakens. In the city, where we are circumscribed by the limits of two or three scanty lots, there is not, indeed, much room for choice, except so far as a corner, fronting on two streets, and where orientation can be observed, is an advantage. Proximity to buildings of sufficient magnitude to mar the effect should be avoided, and the space provided be large enough to allow of light and air being admitted on all sides. We should also not suffer ourselves to be bound by the laws of street alignement, but set the building back a sufficient distance to admit of an ample court-yard. In the country, however, where room is unlimited and land comparatively cheap, there ought to be no exception to the rule that the church occupy the best place in all respects, that can be selected. Yet how often do we find its locality to be a plot of ground given by some wealthy parishioner, and chosen as the piece he can most conveniently alienate from his broad acres,—perhaps low, ill-drained, far from the centre of the place, and only available, not desirable, after a vast expense in draining and grading has been gone through by the recipients. Or, it is a barren, treeless spot on the bleak, blown top of a hill, exposed to driving rain in winter, and pitiless heat in summer, the many points desirable in the situation of a church subverted to the private interests of the donor, who

PLATE 7.

DESIGN 3.



— PERSPECTIVE VIEW. —

fancies the proximity of the house of God may improve the value of this or that portion of his property.

Scarcely ever, it would seem, is the site of the modern church chosen purely with reference to its suitability. So much was this regarded in mediæval days, that the structure seemed rather a natural outgrowth of the soil than to have been raised there by man's hands. The modern edifice, on the contrary, is too often an excrescence, which might have been placed anywhere, and had far better have been placed nowhere.

The determining of the best situation for God's house was a matter of careful consideration with King David, as we read in Psalm cxxxii: "Surely I will not come into the tabernacle of my house, nor go up into my bed; I will not give sleep to mine eyes, or slumber to mine eyelids, until I find out a place for the Lord, an habitation for the mighty God of Jacob. Lo, we heard of it at Ephratah: we found it in the fields of the wood." And certainly we cannot say, with any truth, in the words of David, "Lord, I have loved the habitation of Thy house and the place where Thine honor dwelleth," unless we repudiate the principle so general in the present day of giving not the *best* to God, but only those superfluities that can be easily spared;—no spirit of sacrifice being apparent.

The requirements of individual places being so very varied, it is impossible to lay down any fixed rules on the subject of church sites, but we may remark generally that unfavorable contrasts are to be avoided—such as the modest village spire, showing against the towering height of a lofty hill; the abrupt slope of which is, moreover, liable to attract the eye, and make the steeple look askew. For such a situation, broad, low towers, and massive walls of rough stone, are most appropriate; while on a flat plain, lightness and loftiness may be predominating characteristics; as here the contrast is in our favor. Near the bottom of a gentle eminence is, perhaps, the most favorable position, and if its gray walls appear nestling beneath the drooping boughs of grand old trees, and the sound of its praise mingle with the murmur of some near-flowing rivulet, so much the better. Peaceful and harmon-

ious surroundings lend an added charm to the building; and hill, stream, and trees may seem to join us in a Benedicite, blessing the Lord, praising and magnifying Him forever.

Again, the church should have ample space to be set well back from the road, and be approached by a winding avenue. We would recommend that at least two acres be devoted to this purpose, exclusive of the space that the building itself occupies. The grounds should have a park-like effect, and be laid out in grass only. The rectory may occupy one portion, its garden and out-buildings being fenced off for greater privacy. On another portion, or perhaps attached to the church by an elongated sacristy, may be the Sunday School building; which may be fitted up to serve the purposes of a chapel as well.

Horse-sheds, one adjunct of a church, seem to be an unavoidable necessity in a country place, where many of the congregation come from a distance; but there is surely no need of their being put up, as they generally are, in the ugliest, shabbiest way—a blot and eyesore to the neighborhood. We have endeavored in design I. to show these structures of a more becoming character.

The surrounding grounds should be bounded by a low wall of stone, with an iron railing above of appropriate pattern, or, in a village, a fence of iron entirely answers every purpose. Gates may be of various design, generally of iron. One very picturesque form of gate, specially appropriate where there is a grave-yard, is the lych-gate; a specimen of which we give in design IX. Under its sloping roof the bier was anciently rested before entering the church-yard.

We cannot too highly recommend the introduction of ivy upon the outer walls. We have few native evergreen ivies, but there are a number of deciduous ivies of rapid and luxuriant growth. The great difficulty with the English and Irish ivies is the extreme heat and cold of our climate; both of which conditions are unfavorable to their growth. With care, however, and in shaded situations, they may thrive very well, when once a vigorous growth is attained; but they require in very dry weather to be constantly watered at the roots. Ornamental shrubs

and evergreens may be sparingly introduced among the larger trees on the grounds.

We would always recommend that at least one acre of the church grounds be reserved as a graveyard; preferably on the east side, in the rear of the chancel. A country church never appears quite complete to our eyes without its accompanying "God's acre," which itself seems hallowed by the proximity of the sacred edifice. When the east side is filled, the south may be similarly appropriated. By sanction of ancient usage, the *north* side is in England not thought desirable.

We may here crave the indulgence of our readers for adding a few words respecting appropriate forms and inscriptions for Christian monuments—a subject still but little understood; although the present generation has happily become too well acquainted with the principles of true art to perpetrate such horrors and absurdities in the way of tombstones, as were the mode during the last two centuries. While we may feel tolerably certain of encountering no more specimens of half-naked allegorical figures, heathen inverted torches, cinerary urns, with gilt flames issuing from the top, and skulls, cross-bones, and cherubs in pleasing confusion, yet there remains great room for improvement. We may instance the ponderous high tomb, standing like an altar on four or six legs; the square pedestal and spacious railed enclosure, and the broken column overhung with some mysterious drapery, apparently placed there to dry by an absent-minded laundress. Of far greater propriety and beauty is the simple head-stone in the form of a cross, or enclosing a cross within a quatre-foil or circle, or the coped stone extending the full length of the grave, and resembling in shape an antique coffin-lid. On its apex was carved a floriated cross, while the inscription ran around the edges. Another ancient form was the low, coffin-shaped stone sarcophagus, standing about two feet from the ground, known as a coped high tomb.

To pass from the form to the inscription of a Christian tomb, we may venture to remark that here there is also room for improvement; and the substitution for hackneyed verse and vain-glorious eulogy on the departed, of some such simple, humble words of faith as

were carved on the monuments and brasses of our ancestors: *Orate pro anima; Cujus animæ propicietur Deus.* (Pray for the soul; on whose soul God have mercy.) It may be thought, however, that there is a doctrinal objection to these, as they seem to point to a belief in the Romish doctrine of Purgatory —which it is the special aim of Anglicans to avoid. Rather than these, we would suggest some such form as St. Paul's epitaph, written by himself, which is free from all taint of superstition: "To me, to live is Christ: to die is gain." Or that of St. Stephen, spoken *in articulo mortis:* "Lord Jesus receive my spirit!" Or, again, such a quotation from Holy Writ as, "I know that my Redeemer liveth;" etc. "I am the resurrection and the life, saith the Lord;" etc.

But, instead of these, too often there meets the eye, following the name of the deceased, only a lengthy statement of his having possessed every virtue and been blessed with every talent; that he was for many years captain of the county militia or judge of the court; and the only mark of Christianity on the whole tomb is the mention of his being born and having died in such years of our redemption. We need hardly instance the numerous cases in which coarse levity, and even profanity, have disfigured the last resting-places of the dead.

We have but hastily considered the subject of the church's site and surroundings, but we hope to have indicated in some degree what these should properly be. What fond memories will not rise in the breast of even worldly old age, of the little weather-beaten village church of his youth! albeit, some crazy timber Grecian temple, scarce worthy the name! There he first heard words of wisdom and holiness, from the lips of the gray-haired pastor; there first bowed his knee in trembling humility before the altar of God. Beneath that mossy roof he stood, hand in hand, with his young bride, and plighted the faith he has kept so truly all these years; and in its green churchyard he has, perchance, laid his first-born and the parents of his affection. Who can say how much more fondly we shall look back, in years to come, on our village church, built and adorned in a manner fitting the worship of God, and its charm made more perfect by every lovely

and harmonious surrounding that a cultivated taste could desire.

We have already suggested that the parsonage be included among the buildings on the church grounds, and in architecture correspond with the church itself. Not that it need look like a copy in miniature, but the substantial stone walls and Gothic character of its exterior should harmonize and blend with the mass of buildings. A modification of the Tudor style particularly recommends itself for this class of residences—with its wide, mullioned windows and door openings, peaked gables, and irregular sky-line. Verandas, balconies, porches, and canopies may be introduced with great propriety; nor should the inside fail to correspond with the outside in the expression of those traits which should equally distinguish the parsonage and the parson—Holiness, Humility, and Hospitality.

The first of these good qualities should find utterance in solidity of construction. Since we deem our Mother Church to be for all time, so the houses of her ministers should be formed to last; not flimsy structures, which look as if the next high wind might blow them away. It should be connected with the church by a cloister—a feature which would prove of great convenience to the pastor in inclement weather. Attached to the parsonage, it would be well to have an oratory or private chapel for family worship. It will add very greatly to the beauty of the plan, if this be allowed to appear in the form of a projection from the house, facing eastward. Its roof should be somewhat lofty, gabled, and surmounted by a cross. A Gothic stained glass east window may very properly be introduced, but if so, by all means let it show on the outside, and not be masked by an ordinary square-headed opening, filled with common panes. We think there is an objection to building a chapel to a private residence, as, owing to the uncertain tenure of property in this country, the house is liable, on the demise of its owner, to be sold, perhaps, to a person having no sympathy with religion, who might desecrate it. But as the parsonage is to be forever dedicated to the use of the Church, this objection does not apply. Then, as texts of Scripture are appropriate for the adornment of the church, why may they not be applied, with equal propriety, to the

priest's house—both carved upon its outer and illuminated upon its inner walls?

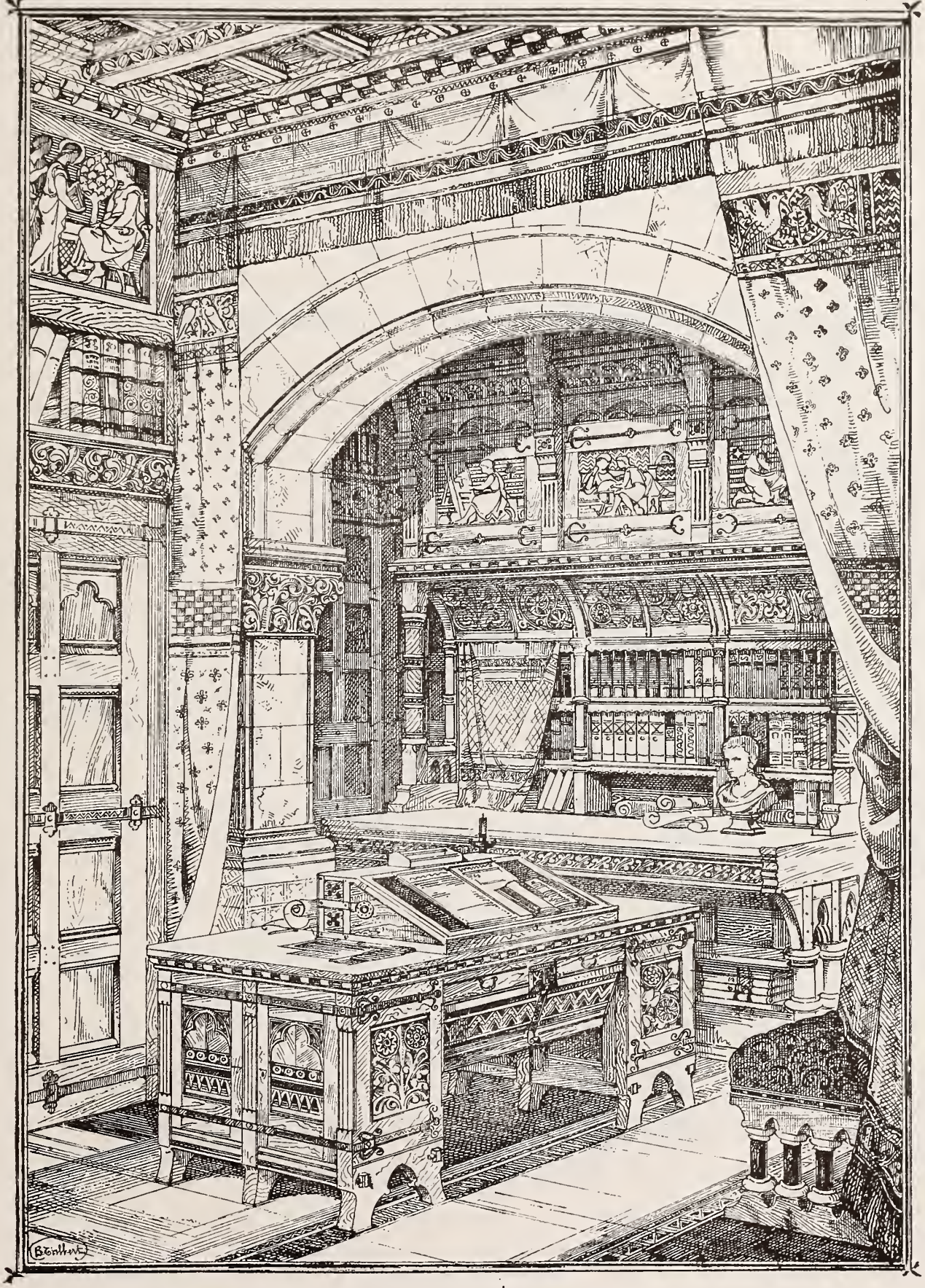
Humility should mark the parsonage in the due proportion of horizontal lines, given by means of bands or string-courses, and in its modest dimensions. A drawing-room, dining-room, study, seven bedrooms, and the domestic offices, ought to be ample accommodation, exclusive of the oratory. No superfluous ornament should be admitted, for even as in dress, the pastor and his family should be the last to ape the outward adornment of idle and extravagant fashions—choosing rather the "ornament of a meek and quiet spirit,"—so the parsonage should be marked by a certain chastened and sober dignity of aspect.

An expression of Hospitality is given by a spacious doorway, broad windows, and ample porch. The house should stand well revealed beneath sheltering trees, so that the poor, the stranger, and the afflicted may have no difficulty in distinguishing the pastor's home. Let no forbidding wall, lofty and iron-spiked, surround it, for the pastor is not to withdraw into monastic seclusion, but dwell in the midst of his flock—ever ready to lend a willing ear and extend a helping hand to all their perplexities and sorrows. Let the gabled and vine-clad porch be surmounted with a simple cross of stone, and within have ample stone seats on either side, inviting the weary to rest. Surely, around such a dwelling a spirit of devout and chaste repose would linger, and mark it unmistakably as the home of a long line of honored ministrants in the service of His holy altar.

We would make especial mention of the study as the room devoted to the intellectual labors of the minister, and where he receives his parishioners for spiritual counsel and guidance; and this we would have in every way expressive of its objects and uses. We would recommend that the furniture should be unique, artistic, and essentially Gothic in character; including bookcases and canopied chimney-piece in carved oak or walnut. An open wood-fire blazing on its hearth would seem expressive of warm-hearted benevolence, and the glowing dyes of a Turkey carpet or Persian rugs, laid upon a hardwood floor, should lend the aid of rich color to beautify this apartment. We had intended designing a model interior for the rector's study, but are so much struck

with the appropriateness and beauty of a design by an English architect, that we feel we shall be doing him no injustice by incorporating it with our text.

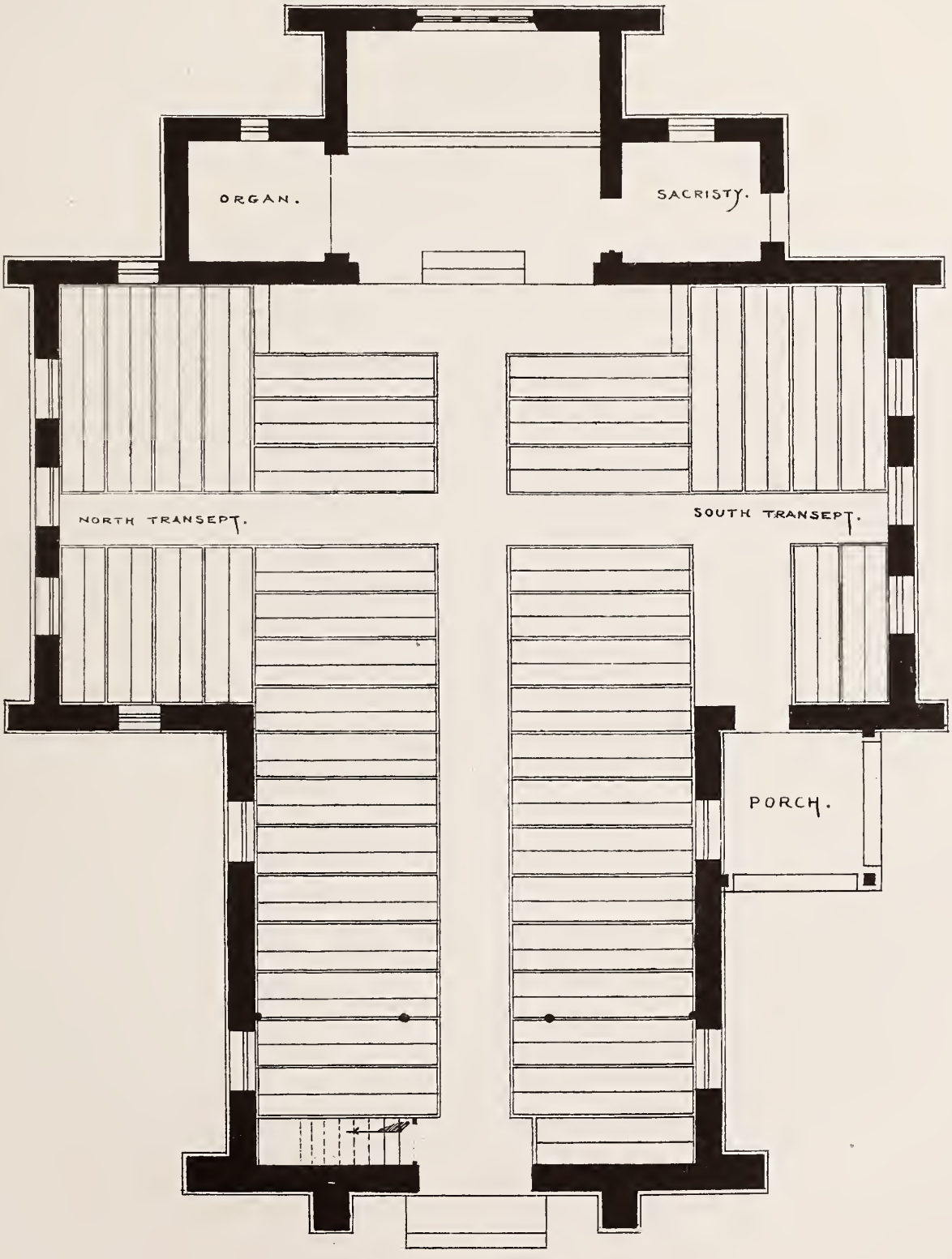
Thus let the "beauty of holiness," the grace of humility, and the virtue of hospitality, have thorough expression in the pastor's dwelling, and we doubt not the gentle heart and Christian spirit of its occupant will supply all that may be lacking in it, which senseless brick and stone can never give.



Interior of Library.

AM. PHOTO-LITHOGRAPHIC CO N.Y. (OSBORNE'S PROCESS)

PLATE 9. —— —— DESIGN 5.



GROUND PLAN.

0 5 10 15 20.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. / OSBORNE'S PROCESS.

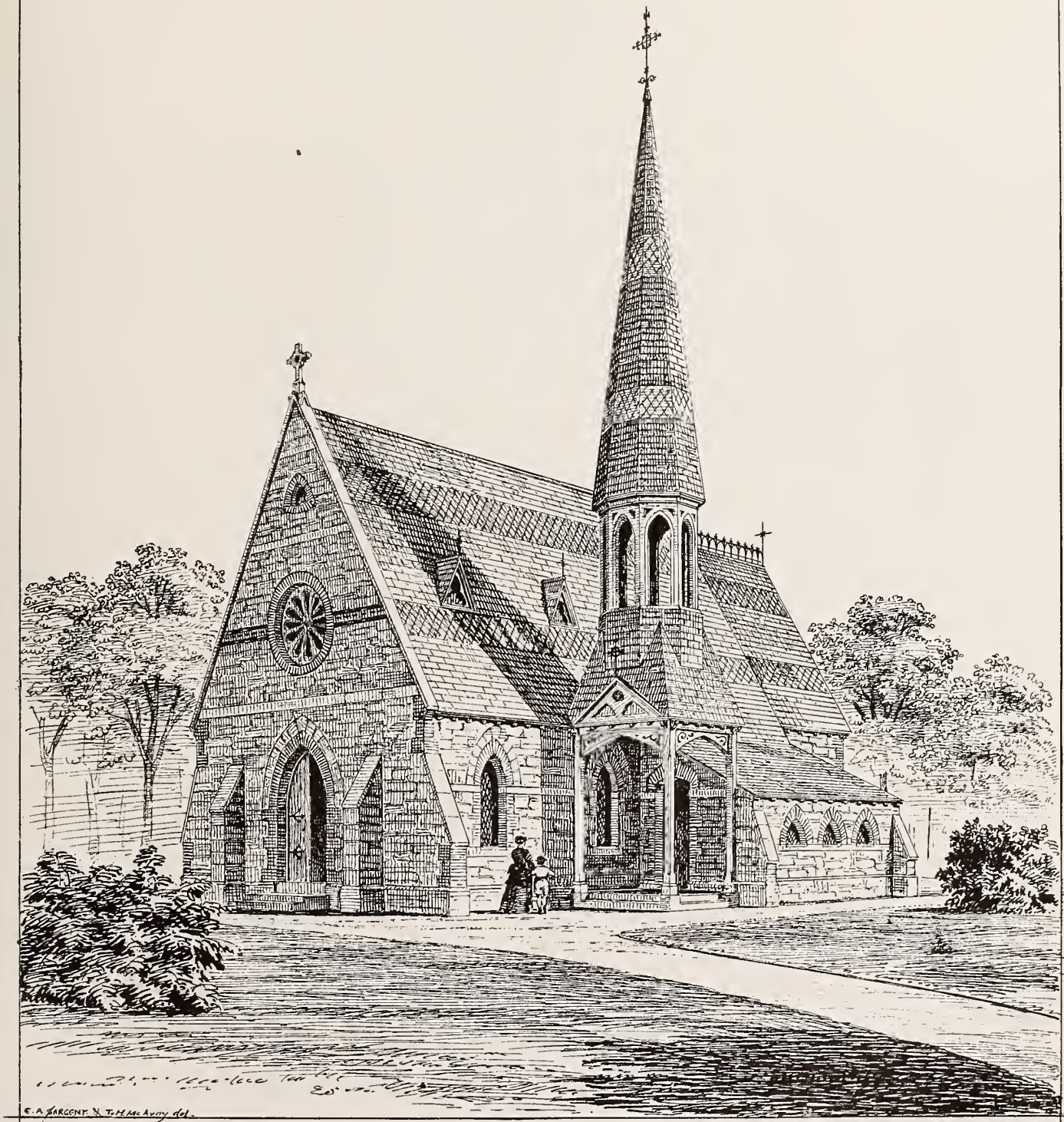
DESIGN V.

This church was designed for one of those quiet little corners of New England, where woodland and stream, mountain and valley, combine to give a romantic and varied charm to the surrounding landscape. There already existed an ancient church of more than usual picturesqueness, which had done service for upwards of a century; but this was now not only too small, but so utterly dilapidated as to preclude the idea of repair. The building of a new church was then very naturally discussed; when it was decided that $6,000 was the utmost they could afford to spend; and for this amount they wanted a stone church, with transepts, chancel, and spire, seating not less than three hundred persons! We remarked at the time that we thought it would be difficult to effect so much, at so small an outlay—still, we were prevailed upon to make the effort.

Knowing that to carry out the plan proposed in the usual way, would exceed the amount three times over, we made it our study to economize in every way possible, without injury to the appearance or stability of the edifice. The first step was to arrange a ground plan seating the required number in the most economical manner, and then came the problem, how to arrange the exterior. The transepts we found it impossible to run up in the gable form, without an excess of cost beyond the means, and a stone tower and spire were out of the question. The idea then occurred of treating the transepts as lean-tos, while a timber entrance porch, surmounted by a timber belfry, carried up to a sufficient height to warrant us in calling it a spire, took the place of the more expensive tower. Still, we were in doubt whether the church could be of stone at all, when some worthy parishion-

ers came forward, and offered to give the stone from their quarry; also delivering it free upon the ground. But this was not all—a great deal of cut stone was required; all the quoins, arches, string-courses, weatherings, and water-tables were necessarily of this expensive material; and again the good people were brought to a stand-still, and feared they would have to resign their hopes of a substantial stone edifice. At this point we proposed making a substitute of brick for cut stone; but this their minds were hardly prepared for—unless the brick should be painted an agreeable color. We strongly objected; declaring that the contrast of the red brick and cold bluestone would be a very happy effect. To this our friends suggested roast beef—and zebra—and streaky bacon; we stood firm, however. In the end, red brick carried the day, and the work was fairly started. The whole was completed in an economical, but very thorough manner, and we have, for the first time, understood that a church was built, the cost of which did not exceed the original estimate. We would mention, however, that this was before the war.

PLATE 10. DESIGN 5.



E. A. SARGENT & T. H. McAVOY del.

PERSPECTIVE VIEW.

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CHAPTER VII.

ON ROOFS.

It is frequently imagined that the art of construction does not enter into strictly architectural practice. This is supposed to fall within the province of the mechanic or the engineer; and some are even so ignorant as to think the builder takes precedence of the architect in practical matters; the latter merely furnishing the design to suit a construction already worked out. It is obvious, however, on reflection, that it is as necessary for the architect to understand these principles in their highest development as for the sculptor or painter to be thoroughly acquainted with anatomy;—in fact, construction may be called the anatomy of architecture—the very base upon which the art of design is founded; and on the nature of the foundation must depend the excellence of the superstructure.

There can be no doubt that the authors of the grand mediæval works were thorough masters of the practical part of their calling, and wrought out problems in building, which it would be difficult, if not impossible, to rival or improve. Take, for instance, the groined and vaulted roof of a grand cathedral; whose aerial poise on its slender columns is so perfect. Every line and every *voussoir* is so exactly calculated to gather up the numerous thrusts, and transfer them to the columns below, that the mighty mass is poised in mid-air with a firmness which has withstood the test of centuries.

In very early times, owing to the limited knowledge of what could be done by nice calculation, these ceilings were supported by masonry of so heavy a character, as to give the impression of clumsiness. The piers were of great thickness,—double the size of those used at a later period,—but as science advanced, and new problems were worked out by the aid of

mathematics, lightness and delicacy became marked characteristics of Gothic architecture. The piers were made more slender, and the buttress was employed; to which was transferred the lateral thrust of the roof. In time the buttress was also reduced to its minimum proportions, until it became fined away to an extent insufficient to resist the numerous strains. As an offset to its thinness, greater height was given it; and now the graceful finial towers against the sky, giving firmness to its otherwise inadequate foundation.

In the same manner, the Gothic timber roofs are, in their own way, models of ingenious and deeply-calculated construction. These are as antagonistic to the low-pitched tie-beam roofs, in use previous to the thirteenth century, as was the lintel of the Greeks to the arch of Christendom; the roof taking an acute instead of an obtuse angle, and rejecting the tie-beam altogether.

To render clearer these remarks, we propose briefly to describe the two kinds of roofs; namely, those which cause merely a vertical pressure on the walls, and those which exert a lateral thrust.

The form of the *low-pitch* or *tie-beam* roof consists of two principal rafters inclined to each other and meeting at the apex; the lower ends, which rest upon a wooden sill, called the *wall-plate*, being tied together by a horizontal beam, to prevent their spreading; which would otherwise have a tendency to thrust out the walls. As the weight of the tie-beam would cause it to sag were it unsupported, especially in buildings of a wide span, it is suspended from the ridge by means of a timber, called a *king-post;* which, in its turn, is held up between the principal rafters. There are also diagonal timbers, called *struts*, carried from the foot of the king-post to the centre of the principals to prevent their sagging from their own weight. The whole system is called a *truss*. Trusses of this class are adapted to a span of from thirty to thirty-five feet. (See fig. 1.)

For a larger roof than this, it is necessary to introduce further supports, and, accordingly, two shorter posts, named *queen-posts*, are placed, one on each side, at equal distances between the king-post and the lower ends of the rafters. In this case the principals do not meet at the apex, but terminate at the queen-posts,

against which they abut; the latter being kept in position by a second timber, called a *straining* or *collar-beam;* which also abuts against the heads of the queen-posts, and by this means they are suspended. There are also struts extending from the foot of the queen-posts to the rafters, which aid in supporting the latter. (See fig. 2.) This roof has been constructed to a span of fifty feet with perfect success. The following are the scantlings (or measurements) of the timbers employed:

	INCHES.
A. Tie-beam, 57 feet long; the span of the walls being 51 feet, . .	14×12
B. Queen-posts, ...	9×12
C. Braces or struts, ...	9× 7
D. Straining or collar-beam, . .	10× 7
E. Straining piece, . . .	6× 7
F. Principal rafters, ...	10× 7
G. Camber beam for platform, . .	9× 7
H. Iron rod supporting tie-beam, .	2× 2

The latter takes the place of a king-post.

Where spans of still greater width are to be dealt with, the number of suspending pieces is increased in proportion; and instead of one queen-post, placed at each side of the centre, two are employed; giving five suspenders instead of three. These trusses may be used for roofs of sixty to eighty feet; the number of supports increasing with the size. In the Riding House of Moscow, which was two hundred and thirty-five feet span, no less than eleven suspenders were employed. In roofs of such enormous size, however, it is doubtful whether the tie-beam truss is to be recommended; as in the present instance, although a most extraordinary piece of engineering, its span has proved too great to be sustained on this principle. Such a building can more readily be roofed by means of arched trusses, formed of radiating binding-pieces, connecting an upper and lower rib, and strengthened by diagonal framing. Trusses of this form may safely be used for almost any span, provided the abutments are secure. In practice they are chiefly employed for bridges; an instance of which is that over the Schuylkill, at Fairmount; its length being three hundred and forty feet, without any support, except the end abutments. For low buildings, however, such as riding schools and railway stations, such trusses may readily be introduced by extending the ends to

the ground, where solid footings are obtained.

Some admirable roofs, with iron trusses of this description, have been constructed in England; one very fine specimen being that over the St. Pancras railway station, designed by Mr. Geo. Gilbert Scott. Occupying a site of nearly two acres, it is undoubtedly the finest terminus in the world. While it has the widest span of any roof in existence, the space beneath is unbroken by ties or braces, common to all others. Its style is subdued Gothic, with segments meeting at its crown. The roof springs from the platform level, the principal ribs each having the form of a four-centred arch, the radii of the curves being fifty-seven and one hundred and sixty feet respectively. The two central curves —those of one hundred and sixty feet radius—meet at an angle in the centre at a height of ninety-six feet above the platform level. The feet of the ribs are tied to the floor girders, and besides are each secured by four three-inch bolts to an anchor-plate built into the wall and strongly fastened. The transverse floor girders thus take the thrust of the roof.

The length of the roof is six hundred and ninety feet, with a clear span of two hundred and forty feet, covering five platforms, ten lines of rail, and a cab-stand, twenty-five feet wide—thus making a total area of one hundred and sixty-five thousand, six hundred square feet. Its height at the ridge is one hundred and twenty-five feet above the level of the road.

There are twenty-five principal ribs in the roof, each weighing about fifty tons. Between each of these, which are twenty-nine feet four inches apart from centre to centre, are three intermediate ribs carried by trussed purlins, constructed so as to stiffen the bottom flanges of the main ribs laterally. The station walls rise behind the spring of the principals, the space at the top being filled in with open iron work. The roof is glazed about seventy feet on each side of the centre, and the remainder is covered with slates on boarding, one and three-eighth inches thick, grooved, tongued, and chamfered. Over nine thousand tons of iron have been employed in this building, and as its superior strength admits of its use in far more slender proportions than wood, this material may, in many cases, be employed to

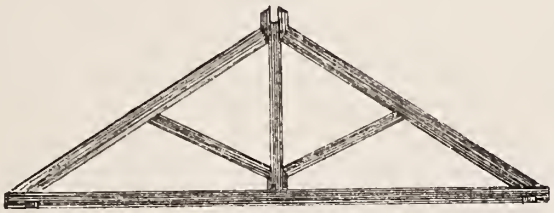


FIG. 1

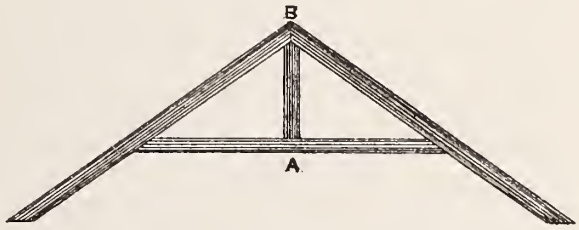


FIG. 3.

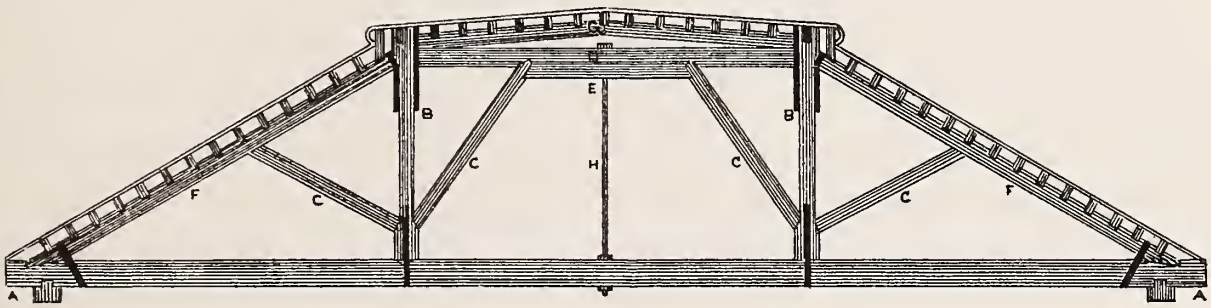


FIG. 2.

FIG. 4

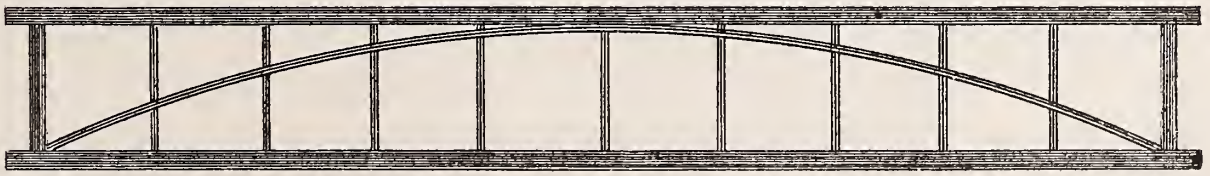


FIG. 5.

great advantage. As a rule, cast iron should be employed when the parts are in compression, and wrought iron when they are in tension.

As we have before stated, the Gothic, or high-pitch roof, differs from the classic, as the arch differs from the lintel; and was developed under the same influences and at the same time.

The steep roofs of northern countries were a necessity, on account of the heavy falls of snow, causing a strain upon the timber; while, in assuming this form, it became apparent that the lateral thrust was greatly diminished. A simple collar-beam, with the assistance of heavy walls or buttresses, was now found sufficient to sustain the roof in narrow spans, without the aid of that ungothic feature—the tie-beam. As the width increased, additional braces were introduced; an example of this is shown in design IX., the motive of which is taken from Romsey Church, Hampshire, of thirteenth century date, and is a section of the roof shown on plate 23. (See interior.) The fact that the common rafters each assume the form of a truss, thus distributing the pressure equally along the walls, gives the impression of offering entire resistance to horizontal pressure. And although we believe that this is accomplished so far as practicable where the tie-beam is omitted, it is by no means free from cross strains, and without buttresses would have a tendency to press out the walls, did not the ridge act as a girder by resolving itself into a longitudinal truss,—the end of which is shown at A. B., fig. 3. This is framed in various ways; that at fig. 4 being chiefly employed in short spans. Where the length is greater, the form of fig. 5 with a parabolic arch would be preferable. By this method the rafters will be kept nearly in the same plane, and all lateral thrust on the walls be removed; for it is evident that if the ridge is supported, there can be no motion downwards in the direction of the rafters, the whole roof being hung to this longitudinal frame, which is built at either end into the apex of the walls, to which the entire weight of the rafters is transferred.

These trusses are necessary, however, only in case of the absence of buttresses.

The buttress was not introduced, it may be noticed, previous to the twelfth

century; before that, wide spans were supported in a manner somewhat resembling the nave and aisles of a church, by three distinct arches, with wooden intersecting columns running to the floor at each truss. Such an arrangement may be seen in the roof of the great hall of Nursted Court, Kent.

The roof of the great hall at Hampton Court is very strong, and so securely tied that were the curved struts to be removed entirely, there would be little danger of the principals thrusting out the walls; and, on the other hand, from the weight of the roof being carried down a considerable distance below the hammer-beams by the wall-posts and curved struts, the walls themselves offer so much resistance to lateral thrusts, that there would be no injurious strain on them were the tension pieces (curved ribs, forming a low arch below the straight collar-beam) to be removed.

The construction of the hall roof of Eltham Palace, Kent—another famous example—differs again from that last described. The whole weight is thrown on the top of the wall, and the lower pieces are merely placed there for ornament, as the tension pieces form a complete tie.

This was discovered on the wall-plate becoming rotten, when the weight being thrown on the pseudo-struts, they soon bent under the pressure, and forced out the upper portion of the walls.

Perhaps the finest example now in existence of this kind of roof, is that of Westminster Hall (see plate 12), which was completed about 1398, during the reign of Richard II., under the supervision of the renowned architect and statesman, William of Wykeham. The angle of this roof is formed on what country workmen still term common pitch; the length of the rafters being about three fourths of the entire span. The cutting off of the girders, or tie-beams, reducing them to the size of hammer-beams, was compensated by arched ribs, forming one large arch, springing from corbels of stone, which project from the walls twenty-one feet above the floor, and the same distance below the base-line of the roof. The ribs forming this arch are framed at their crown into a collar-beam, which connects the rafters in the middle of their length. A smaller arch within this large one springs from

the hammer-beam, which is level with the base-line of the roof, and is supported by two brackets issuing from the spring of the main arch. From the extremity of the hammer-beams rise queen-posts, supporting the collar-beam, and this again by two queen-posts supports a second collar-beam and a central king-post. These trusses are placed at distances of eighteen feet along the roof, and abut against the solid parts of the walls between the windows, which are strengthened in those places by flying buttresses on the outside.

It will be gathered from the foregoing remarks that the principal difference between the tie-beam and pointed roofs is, that while the first acts on the principle of the lintel, the second corresponds to the arch in the nature of the support it affords. Indeed, a stone arch was the intermediate step between the tie-beam and the wooden arch construction. An instance of this is the roof of the great hall of Mote House, Ightham, Kent. A stone pointed arch is sprung from a corbel about two thirds the height of the wall, the spandrels being filled up solid with masonry to the apex, on which rests an ordinary collar-beam. Diagonal braces are extended from this longitudinally, to add to the ridge an intermediate support. Herein is reversed the principle of the king-post. This timber in a Gothic roof acts as a supporter rather than a suspender, and, instead of being in a state of tension, is in compression.

It is somewhat of a misnomer to use the term tie-beam at all, in connection with a Gothic roof. Let us imagine a stream bridged across by a single timber;—that timber would neither draw the banks together, nor push them asunder; it would be a load, consisting of its own weight, plus that of any object set upon it. This is precisely the action of beams in Gothic roofs.

The beam was viewed as something to build upon, just as the stone arches were; and that arches were deemed the proper support for roofs, we may infer from numerous old examples in wood. It was the fact of the beam being a foundation to build upon that led to its final disuse, except in the hammer-beam form. And to the desire to avoid the depressing effect of this horizontal timber, we are indebted for the most truly artistic

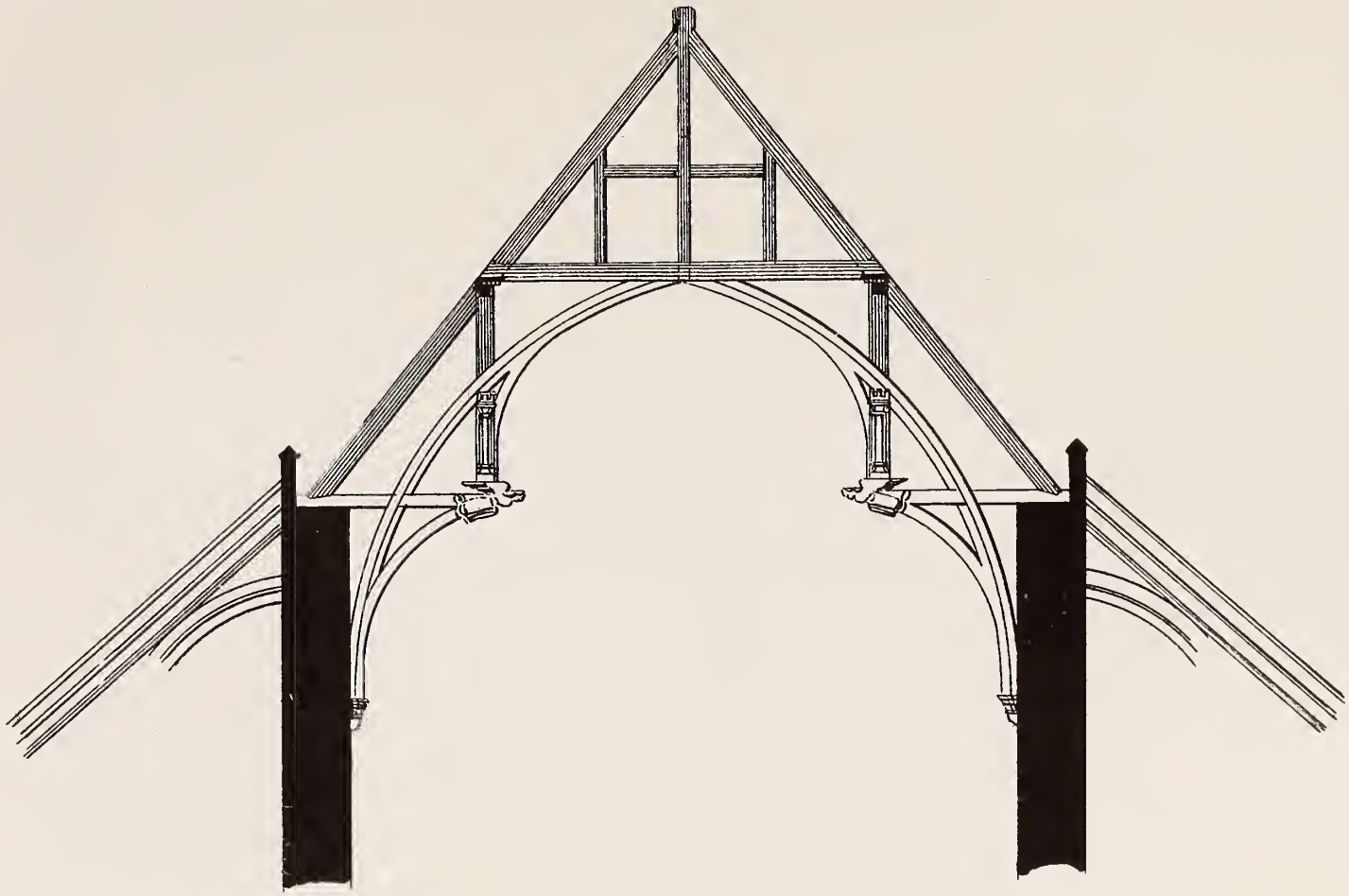
examples of carpentry ever displayed. It was as struts—to resist compression by an outer force, and not as braces to draw other timbers together or suspend them —that the several parts of the mediæval roofs were applied.

Still, though we may not be able to achieve the triumphs of former days, in nothing more than in modern open timber roofs is shown our advance in esthetic construction; particularly when we compare them with the lath and plaster ceilings still to be seen in village churches. Nowhere more than in our large open station and hall roofs is the alliance between construction, material, and design so palpably manifest, because we get conjointly the *summum bonum* of material and esthetic excellence. The very timber and iron used in their construction perform a twofold office—they support the covering and minister to our sense of beauty.

It is interesting to trace the steps of this roof transformation from the days when Pugin first earnestly advocated the abandonment of lath and plaster ceilings, followed by the second abandonment of that clumsy expedient—the tie-beam; which, as the main support of the before-mentioned lath and plaster, became no longer of prime necessity. From that time collars and braces, struts, curved and laminated ribs, have assumed certain decorative as well as structural functions; thus economizing space and utilizing material.

It may, indeed, be urged that an inner ceiling preserved a more equable temperature, but by boarding the back of the rafters, thus allowing an air space to intervene, and the use of felting, the open roof possesses the same advantages, and has besides the merit of far better effect.

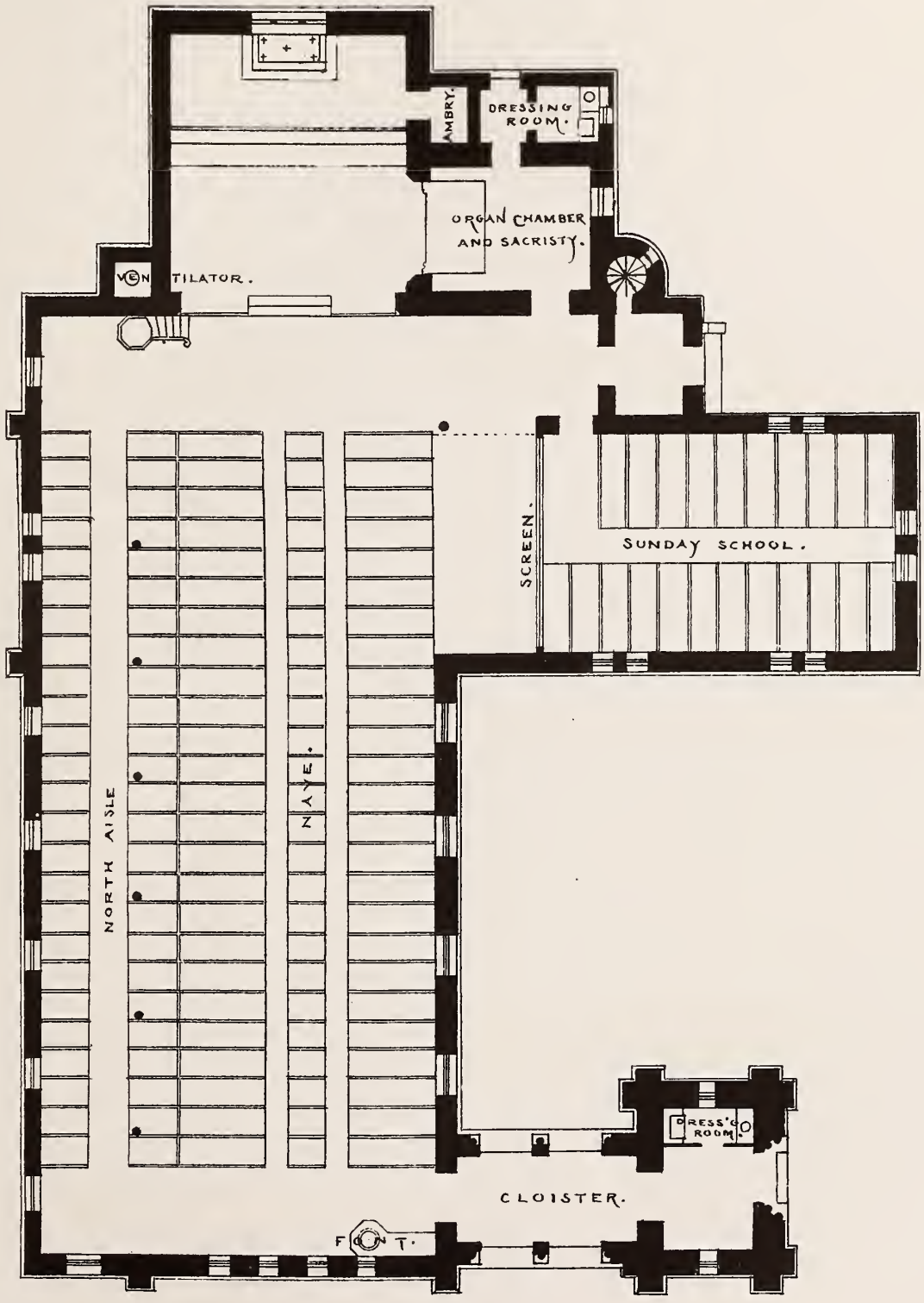
PLATE 12.



ROOF OF WESTMINSTER HALL.

PLATE 13.

DESIGN 6.



Ground Plan.

0 10 20 30 40

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

DESIGN VI.

This design, which is somewhat irregular in outline, is composed of nave and north aisle, and contains some four hundred and fifty sittings; which may be increased another hundred by removing the screen which divides the church proper from the lecture or Sunday School room, in the manner described at page 150. The sacristy and organ-chamber are contained in the ground floor of main tower, at the left of which there is an eastern entrance, which also serves as an entrance to the Sunday School.

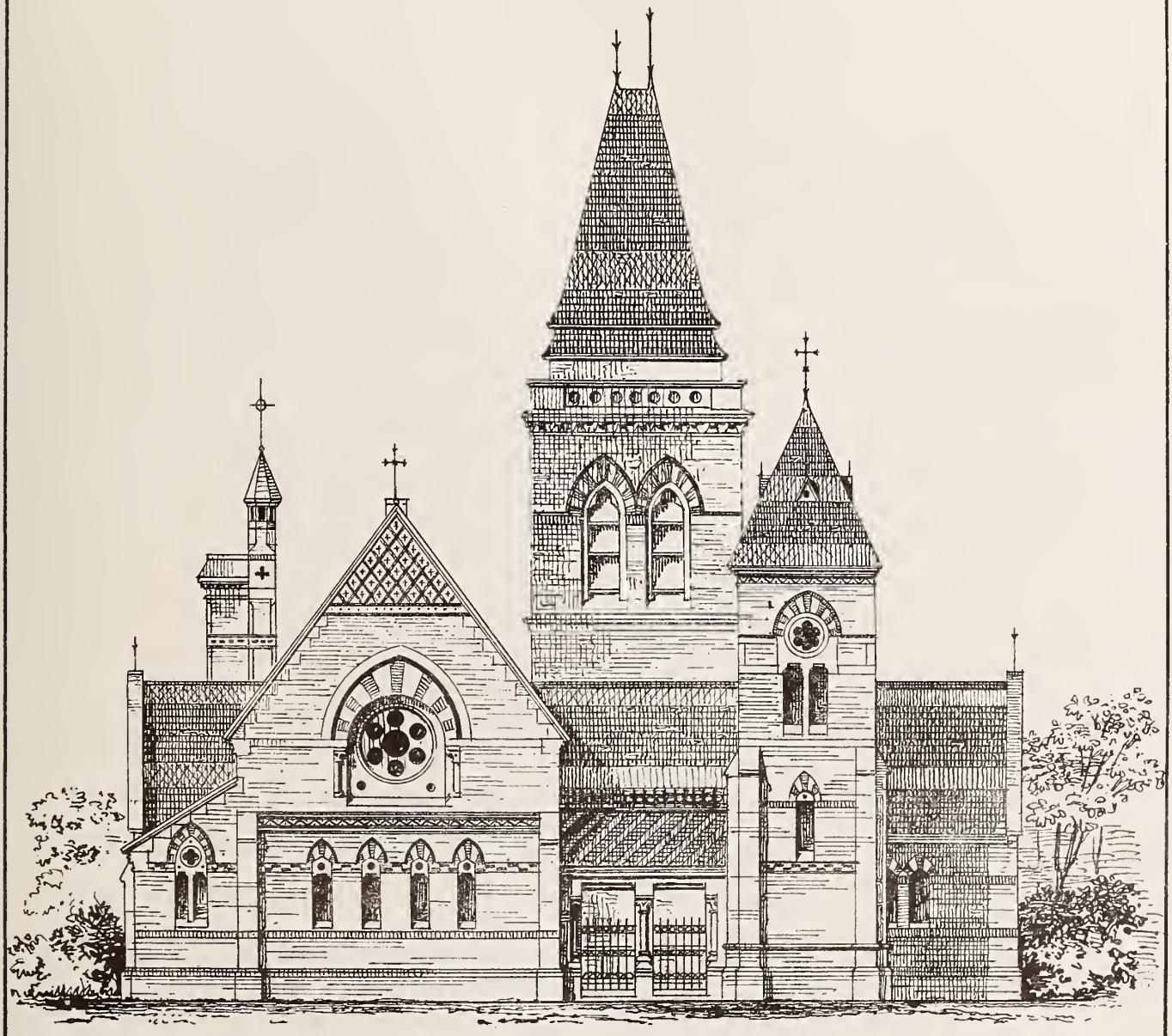
There are two towers in this design, the westernmost being the principal entrance. It is isolated from the main structure, being only connected therewith by an open cloister. The effect of this is very pleasing—both nave and tower being finished complete on all sides without interfering with each other's proportions, while the bays of the cloister, having their openings filled with iron-work of mediæval design, enable passers-by to look entirely through at the architectural effects beyond. Little surprises like this are exceedingly agreeable, and very much in the spirit of mediæval work; which delighted in mystic effects and unexpected developments.

The introduction of iron columns in the present and other designs of this work, induces us to say a few words in defence of this material; although by so doing we shall, of course, incur the censure of powerful writers, who declare that cast-iron is not architecture, and oppose its use for the very sapient reason that it never has been used, and consequently should be forever excluded. But as at present applied, we consider that we are using it to advantage, for reasons stated in a previous article. It is indeed, wrong to use metal columns, cast and painted in imitation of stone; but in this case the material is frankly acknowledged; the capitals being formed of wrought leaves, and the whole bronzed, or otherwise decorated, to indicate its metallic nature.

It is true that our sympathies turn instinctively from the force of early education and love for the noble works of the past, to the use of stone in buildings of a monumental character. For these, stone would seem the most appropriate material, as being most expressive of massiveness and durability, and as that with which nature herself has supplied us. "The very stones we see around us," is our natural reflection, "have been used to erect these cloud-capped towers, gorgeous pinnacles, and solemn temples which excite our admiration;" while a building composed entirely of iron, impresses us at once with a sense of artificiality. The material is manufactured; the broad play of light and shadow upon massive pier and lofty arch, the magic effects of *chiaro-scuro* are all lost; and in their stead we have only thin metallic shafts, roofed with a web of spider-like framing; offering, indeed, the advantage of economy of space and expense, but greatly wanting in artistic effect; at least as at present constructed. Many subordinate parts of buildings have, however, been rendered in iron in the most exquisite manner. The roof of the new museum at Oxford, in particular, is a triumph of art in metal work; while some modern screen work is fully equal to the best ancient examples. We have only to go on enlarging and improving in this field to attain just what is needed.

The transept in this design is not as available as some others, on account of its being placed one bay westward, which excludes the view of the pulpit from many of the sittings. As an excuse for this, we would state that the Sunday school was originally intended for a separate room; the movable screen being an after-thought.

PLATE 14. DESIGN 6.



— Elevation. —

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CHAPTER VIII.

CHURCH ORGANS AND MUSIC.

Of all musical instruments, surely the most grand and soul-moving is the organ; the stately volume of whose voice, as it rolls through the vaulted expanse of some vast cathedral, thrills us with mingled awe and admiration.

The tuneful violin, or softly breathing flute, may more fitly express sentiment and feeling, but the pealing organ best accompanies our voices when raised to sing praises unto God, and "heartily rejoice in the strength of our salvation."

Ancient legends ascribe the invention of the organ to St. Cecilia, who lived in the reign of Alexander Severus, and is known as the patron saint of music. Instruments called organs are mentioned in the old Testament (see Genesis, iv.; Job, xxi.); although what their shape or mode of use might have been we are not informed. Probably the first organs were neither more nor less than the Pan's pipes, or mouth-organs, familiar to small boys at the present day; while some writers have conjectured that they were *bagpipes!*

According to Rimbault, rude organs were in use before the Christian era, in which both bellows and stops were employed, and Vitruvius tells us of a hydraulic organ—his description of which, however, is rather too vague to give us a clear idea of its form or working. This much is certain, that the *hydraulicon* was provided with pipes, sound-chest and register, like organs in the present day, the water serving to give the sound by means of counter-pressure, equality, and power.

Some of our readers may, perhaps, have been favored, during a sail up the Hudson, with a series of dismal sounds, supposed to represent popular airs, and produced by a musical instrument, ycleped the "steam calliope," which they were in-

formed was a new and remarkable invention in the organ line. The first steam organ, however, was invented, according to Don Bedos, a Benedictine monk, by Pope Silvester II., in the year 1003; and we only hope in mercy to the ears of the hearers that better music was the result than the distressing performances of the steam calliope.

Organs were first used in churches, Platina informs us, by Pope Vitalianus I., A. D. 666; but, according to Julianus, a Spanish bishop, who flourished about A. D. 450, they were commonly employed in the churches of Spain at least two hundred years previous. The instrument was not known in France until the year 757, when the Emperor Constantine presented one to King Pepin, the father of Charlemagne. About the same period they were introduced into England; as we read of some being manufactured by St. Dunstan, archbishop and blacksmith; but it was not until the close of the tenth century that organs of any magnitude are spoken of. At about that period, a great organ was erected in Winchester cathedral, by order of Bishop Elphege; which is described in a Latin poem by the monk Wulston. We give below a few lines translated from this poem:

"Twelve pair of bellows, ranged in stated row,
Are joined above, and fourteen more below;
These the full force of seventy men require,
Who ceaseless toil and plenteously perspire;
Each aiding each, till all the wind be prest,
In the close confines of th' incumbent chest,
On which four hundred pipes in order rise
To bellow forth the blast that chest supplies."

The first organs made had only eight or ten pipes; before playing on which the organist was obliged to close the top of every pipe with his fingers, otherwise all would sound at once. The reservoir was then supplied with wind, and the pipes permitted to speak by raising the finger from the orifice at the top. As the number of pipes was increased, this primitive method became impossible, and valves were introduced. The great difficulty, however, lay in the supply of wind from the bellows—which, unless subjected to a uniform pressure, would cause the pipes to blow flat or sharp, and turn the "concord of sweet sounds" to discord.

This arose from the bellows being worked by man or boy-power; for when the blower conceived it necessary to take

a vacation, he would, perhaps, be succeeded by a substitute several stone lighter or heavier than himself, who would throw the whole scale out of tune. The living weight was at last dispensed with, and blocks of stone substituted; which were again replaced by the metal bars still in use.

It was not until the eleventh century that the key-board was invented, when we hear of one attached to the cathedral organ at Magdeburg, having sixteen keys, each an ell long, and three inches broad. These clumsy keys required to be struck down with the clenched fist, one at a time; and it was not until the fourteenth century that the monks, who, of course, were the organ-builders as well as architects, painters, and sculptors of those days, reduced their size to that of modern times, and extended the compass of the instrument to three octaves.

At this stage our ancestors seem to have rested contentedly for many years, as far as we have any account, though this does not seem in accordance with a spirit which aspired after excellence as heartily as that of the religious workers of mediæval ages. Perhaps, however, the grand, yet simple chants and anthems of Tallis, Farrant, and Rodgers, required but a few sustained notes as their accompaniment, though modern taste seems to demand that their compositions shall be set off by a running fire of elaborate harmonies on the organist's part. Certain it is that we do not hear of such fanciful stops as the carillon or chime of bells, kettle-drum or trumpet, being introduced until the seventeenth and early part of the eighteenth centuries.

It was at this period of the renaissance taste for grotesque and rococo ornament, when the glories of Gothic architecture had apparently departed forever, that organ cases began to be decorated with all manner of extraordinary and incongruous designs. Imagine the organ at Westminster Abbey, or our own Trinity Church, beplastered with carved and painted cherub's heads, vases and garlands of flowers, figures of animals and birds! Or an orchestra of gilded angels, blowing trumpets, King David playing on his harp, and the whole "conducted" by a gigantic figure flourishing a *bâton!* Then, to ward off meddlesome folk, who will be eternally prying and poking where they

have no business, we must have one stop, conspicuous among the others, which they will be sure to pull, when, *presto!* a fox's brush will fly in their faces. Such were the tasteless, and, we might almost say, profane, ideas of that age concerning ornaments befitting the Church of God.

From 1644 to 1660, the time of the Cromwellian usurpation, organs were, of course, abolished in England, as the Puritans regarded them as a Popish, and, indeed, hellish invention, and gave them the contemptuous name of "the devil's box of whistles." What appreciation, indeed, for a superb organ voluntary could be felt by men whose favorite style of music much resembled that described in Hogarth's satirical lines:

> "So swells each windpipe, ass intunes to ass,
> Harmonious twang of leather, horn, and brass;
> While from the lab'ring lungs th' enthusiast blows
> High sound, attempered to the vocal nose!"

Some idea of the devastation committed by the Puritans upon organs may be gathered by an extract from "*Mercurius Rusticus: the Country's Complaint, Recounting the Sad Events of this Unparalleled War;*" published A.D. 1647. At Westminster, we are told, "the soldiers were quartered in the abbey, where they brake down the organ and pawned the pipes at ale-houses for pots of ale. At Exeter Cathedral they brake down the organ, and, taking two or three hundred pipes with them, went up and down the streets piping with them, and, meeting some of the choristers, whose surplices they had already stolen, they scoffingly told them, 'Boys, we have spoiled your trade—you must go and sing hot pudding-pies.'"

And another writer, Bishop Hall, in his work entitled "*Hard Measure*": London, 1547, says, speaking of the destruction wrought in Norwich Cathedral: "Lord, what work was here! what clattering of glass—what beating down of walls—what tearing up of monuments—what demolishing of curious stone-work—what tooting and piping on the destroyed organ-pipes! What a hideous triumph on the market day, when, in a kind of sacrilegious procession, all the organ-pipes, vestments, service-books, and altar-fittings were carried to the fire in the public market-place, a lewd wretch walking before the train, wearing a cope which trailed in the dirt, with a service-

book in his hand, imitating the tune and words of the Litany. On arriving at the fire, the organ-pipes, service-books, surplices, and sacred vestments were committed to the flames."

So complete was the destruction of fine instruments, that, after the restoration, it was with great difficulty that a few of them were replaced at short notice, and it was nearly fifty years before they once more became common in churches. That amusing old gossip, Sam Pepys, in his diary for the year 1667, mentions going to Hackney Church with the double purpose of seeing the pretty girls and hearing the organ—which was then a great novelty, and he considers "mighty pretty." At Whitehall Chapel, he hears, for the first time, a vested choir of men and boys, who chanted the Psalms and responses in the Litany; though whether the excellent old gentleman thought this an improvement on a lanky-haired individual "deaconing out" the Psalms in metre, two lines at a time, and with the aid of a pitch-pipe starting the tune, in a melodious bray, straight through his nose, he does not say. Doubtless, however, worthy Master Pepys had an appreciative taste, both for pretty girls and fine Church music.

There have been many superb organs constructed in modern times, far surpassing anything that our ancestors dreamed of. The famous Haarlem organ was once conceded to be the finest in the world; but the place of honor must undoubtedly be given at present to the great organ in St. George's Hall, Liverpool, built by Messrs. Willis, of London, in 1853. This magnificent instrument has four banks, or manuals of keys, one hundred and eight stops, and eight thousand pipes. Wind is supplied by two immense pair of bellows, worked by a steam engine. Of course, everything in the way of varied tone is introduced, such as the flute, trumpet, carillon, hautboy, tuba-mirabilis, and the exquisite *vox humana.*

It might be thought that the enterprising metropolis of New York would have done something extensive in the way of organs, but here we must gracefully take a back seat for the present, and acknowledge that Boston, the compact little "Hub of the Universe," has taken the lead. The great Boston organ, imported from Germany, in 1863, at a cost of $60,000,

and about which such wonderful poems were written and general glorification indulged, is really to be ranked among the largest in the world, having four manuals, ninety-six stops, and five thousand four hundred and seventy-four pipes. Like that at Liverpool, the bellows are worked by steam; and the modern Athenians may be excused for a natural feeling of pride in possessing the finest organ in this country.

It may well be imagined that to be a fine performer on so vast and complicated an instrument, must require the study and practice of years; and the somewhat ridiculous figure which the organist occasionally cuts, rolling about in his seat like a three-master in a high gale, is no laughing matter to a man who has to manage what may really be called four things at once—the pedal, swell, grand, and choir movements—with all their stops, and fall in harmoniously with the *capriccios* and trills of a "fancy" quartette choir (most quartettes are "fancy," and the leading members usually end by taking to the stage).

And this brings us to a matter which it may not be considered an architect's province to touch upon, but which, nevertheless, must have struck every lover of true Church music: Why on earth should not the quartette choir, with its opera airs and sentimental love songs, adapted to chants and hymns, be totally abolished in favor of a vested choir, and correct Anglican and Gregorian music? That dreadful bogy, Popery, will not be evoked from the depths by such a change, for the real truth is that it is by maintaining the quartette system that our Protestant alarmists are really imitating the practice of Rome in full perfection. It may be classed among "things not generally known," that western organ-lofts and quartette choirs took their origin in the fifteenth century, the most debased period of religion, at the gay city of Naples. The frequenters of fashionable churches found the sober and dignified praise of God not to their taste, and insisted on having *prima-donnas* engaged, and light opera airs introduced. But as the clergy could not admit of women appearing in the chancel, the expedient was hit upon of a singing-loft placed at the west end, and so arranged as to screen the singers from view; a system preserved in our

Protestant churches in the present day. A troupe of performers, hired merely in virtue of their voices, and with not the slightest feeling for the sacred words they torture to make them fit opera music, is perched in a lumbering gallery, and too frequently pass the time, when their efforts are uncalled for, in a scandalously irreverent manner. No authority is recognized by them but that of the organist; who, in turn, frequently scoffs at any attempt on the part of the rector to carry out what the Prayer Book declares to be his duty, viz.: "To suppress all light and unseemly music, and all indecency and irreverence in the performance, by which vain and ungodly persons profane the service of the sanctuary." More than once has the answer been given to such an attempt at regulation: "Mr. ——, if you will attend to *your* end of the church, I will take care of *mine*."

Although this state of things also prevails in modern Romanist churches, that is surely no argument for its perpetuation by a *Reformed Protestant* body. We are glad to see that in those churches where a true spirit of Catholic Christianity prevails, vested choirs, seated as they should be in front of the chancel, have replaced the odious organ-lofts, and all connected with them. The organ has also been removed to its proper position on the north side of the choir; while Anglican and Gregorian chants have driven out "La Grande Duchesse," and "When the Swallows Homeward Fly." At the same time the choristers, under the immediate observation of the clergy, are compelled to maintain a reverent demeanor. Indeed, it properly belongs to the deacon and subdeacon to instruct in their religious duties these boys, who, under proper influence and training, are thus growing up in a school which will ultimately fit them to enter upon the study of the ministry.

A capital set of illustrations has lately been published in England, on the "Deformation" and "Reformation" of various Church matters; among the rest, the old and new style of choir are most spiritedly delineated. We copy these two cuts for the benefit of our American readers, together with two, in a succeeding chapter, on the subject of pews. (See plates 15 and 18.)

It now remains to notice the organ-

chamber, in which the instrument is usually enclosed. This should be situated in the chancel aisle, with the exception that the roof should be carried up to a ridge, instead of a lean-to. The most usual fault in an organ-chamber is its insufficient height and size. Twenty feet to collar-beam is the minimum height to accommodate a moderate sized organ. The advantage of having a spacious organ-chamber is twofold: first, that we thus obtain a space which may be used as a sacristy; and, secondly, in event of a future enlargement of the organ, ample room is thus afforded. This will also obviate the muffled sound that the pipes are apt to have when too much crowded, and, to facilitate still farther the diffusion of its strains, large and lofty arches should form the openings from the chamber into both nave and chancel.

In regard to organ cases, we consider them quite unnecessary, except in the form of a plain panelling on the sides and rear, for the sake of protection. The outer pipes can themselves be symmetrically arranged and decorated in polychrome, so as to produce a highly ornamental front within the archways. The chamber should, however, be ceiled, not with lath and plaster, which again deaden the sound, but with thin boards, running in one length from top to bottom, without any nailing in the centre. There should be an interval between this and the walling; which arrangement will be found to ensure a vibrating effect, much on the principle of a violin body.

There is one other point to be noticed, that of securing a really good and reliable instrument, when it is desired to do so at a moderate cost. Much competition, and an unfortunate habit of building committees, in running about to get the greatest number of stops at the least expense, has led to the manufacture of cheap instruments, with a formidable array of registers, most of which are mere "glittering generalities," giving promise of grand effects which they do not realize. The better plan is to consult some competent organist, and let *him* draw up a specification; limiting the same, of course, to the amount of funds. No matter how moderate the sum, these essentials should be insisted on: first, every stop should act down to the lowest key

THE DEFORMATION.

FIG. 1

THE REFORMATION.

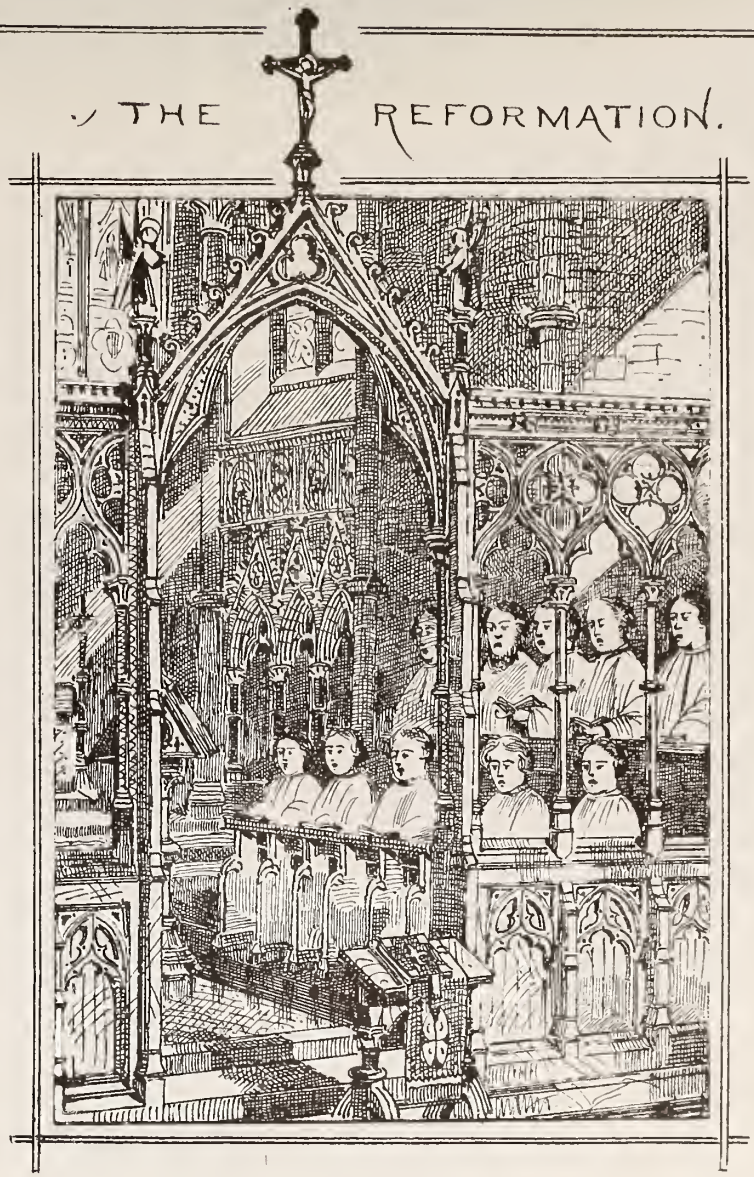


FIG. 2.

THE SINGERS.

on the manual, otherwise the words "dulciana," "diapason," etc., are a lie and a sham; second, the pedal-board should be so placed that its middle C will fall with mathematical accuracy under the middle C on the manuals. For lack of some settled rule of this kind, as to the position of the pedals and keys, and the uniform arrangement of stops, the unhappy organist, seated, for the first time, before a new instrument, is driven half mad to determine the locality of either; all the while being obliged to keep on playing, and making some very stupid and unscrupulous modulations as the natural result.

A fair compass is two octaves and a third; ranging from C C C up to tenor E. If these suggestions are followed, the result will be to lay the foundation of a perfect organ, even if we have but half a dozen stops.

We are largely indebted, in the foregoing chapter, to Dr. Henry Stephen Cutler, the eminent authority on Church music and organs, who has kindly permitted us to make some extracts from his essay on this subject.

DESIGN VII.

The accompanying design is intended for a first-class parish church, although not of the largest dimensions, containing some six hundred sittings. There are two vestibules at the west end, that on the north side, formed by the porch shown on elevation, and the other, on the south, being the ground floor of tower. This being unobstructed by stairs, which are carried up in an external turret, is of spacious dimensions.

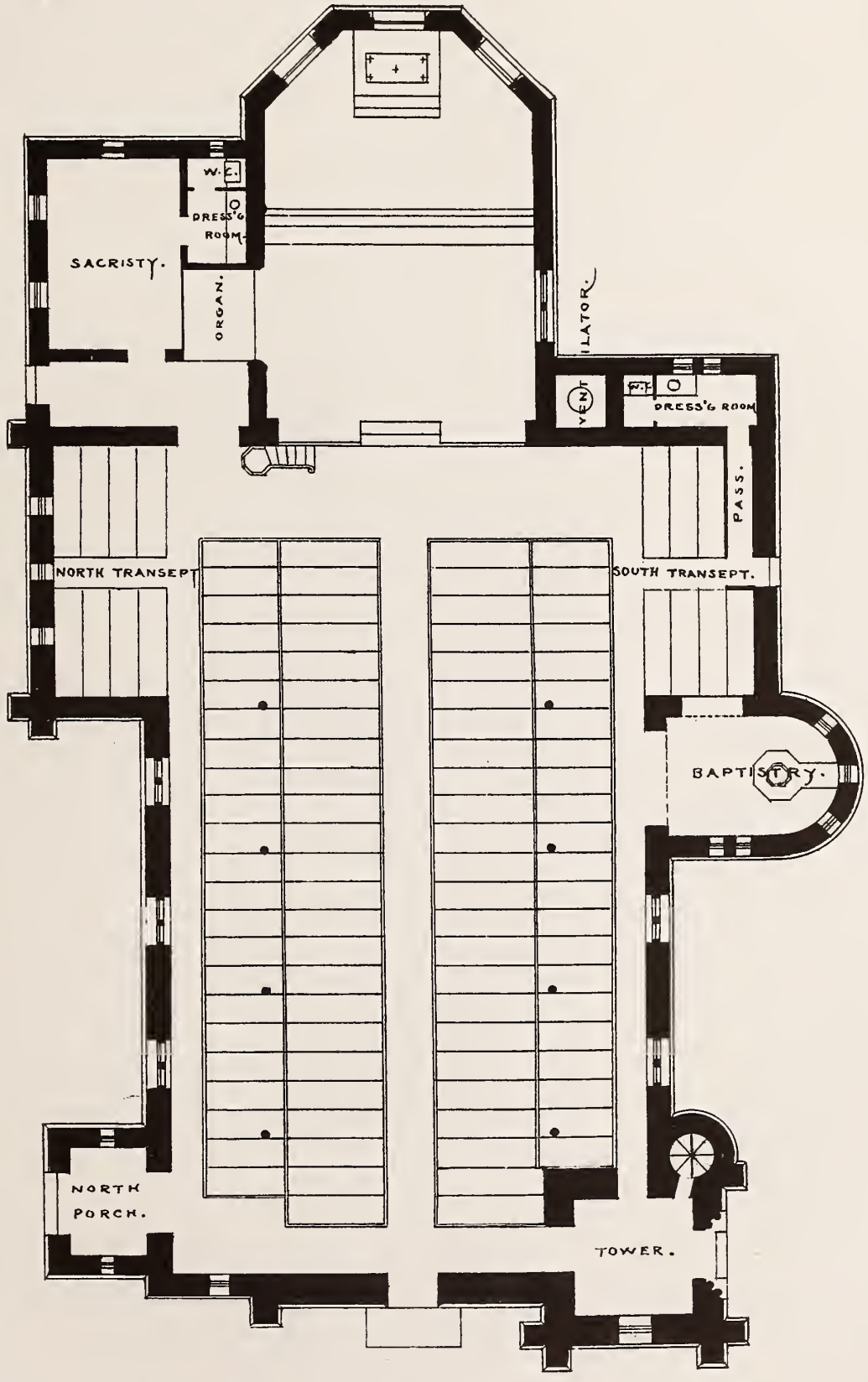
The chancel is apsidal, and rather larger than usual, being upward of thirty feet deep. The sacristy, which also serves as an organ chamber, has an entrance on the north side, which, likewise, acts as an entrance to the church. The sacristy is supplemented by a spacious dressing-room, and there is also one for ladies at the east side of the south transept, the passage to which is rendered private, by means of a light ornamental screen.

A conspicuous feature in the design is the apsidal baptistery, which is worked into the angle formed by projection of south transept. These transepts extend some ten feet, giving about sixteen additional pews, or ninety sittings, which have the advantage of being nearest the chancel, and, consequently, in the most valuable part of the church. Herein is a practical argument in favor of the cruciform plan, independent of its symbolism; while externally the bold and varied outlines of these numerous projections, transepts, baptistery, porch, staircase, tower, etc., combine to give that "architecturesque" effect, to borrow a word from Professor Kerr, so characteristic of true Gothic.

It will be observed that stone crosses are abandoned in favor of iron, for the exterior. The latter are not only less expensive, but, we think, very beautiful, every minute detail being shown with exquisite distinctness against the sky. There is an ornamental iron cresting over the roof of chancel, which is not continued along the entire ridge, for the reason that there would then be no exter-

PLATE 16.

DESIGN 7.



GROUND PLAN.

0 10 20 30

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

nal division of this part from the nave; for, as we have before mentioned, every possible distinction and honor should be paid to the sanctuary over the more ordinary portions of the edifice.

The alleys of a church, often erroneously designated the aisles, should be of ample width; never less than three feet, and from that up to six or eight, the excess, of course, being in the centre. When over six feet, they may be utilized by placing small movable forms through the middle, thus furnishing a number of free sittings. Cross alleys, however, arising from the side-entrance porch being placed at some distance from the west end, should always be avoided, as they have a tendency to divide too strongly the end pews from those farther up, and by suggesting an unpleasant social distinction depreciate their value in a marked degree.

In arranging the bays of a church, it is important to have a column strike the back of a pew in every case; to effect which the bays should contain a multiple of the width of the pews. For example: if the pews are two feet ten inches wide, and the columns fourteen feet two inches from centres, the interspace will contain exactly five pews; if wider than this be preferred, one pew more must be added—making the bays seventeen feet. Should this rule not be carefully adhered to, the entrances to some of the pews will naturally be obstructed, great inconvenience, of course, being the result.

The vexed question of columns has long been a subject of controversy. In mediæval times, when the nave was the part where people most did congregate, and the aisles north and south were used principally for processional ceremonies, the obstruction of columns was a thing of little moment. English Gothic in particular, which delighted in intricacy and smallness of parts, multiplied columns. Continental Gothic eschewed them, and aimed at breadth of effect. Thus in Ely and Lichfield cathedrals we find the columns not over seventeen feet apart, while Antwerp Cathedral has bays of twenty-nine feet, and Breslau thirty. But the Spanish churches show examples of still greater magnitude. San Salvador, Avila, has bays of thirty-four feet; Siguenza Cathedral, thirty-nine feet; and San Maria del Mar,

at Barcelona, has its nave piers no less than forty-five feet from centre to centre. Three bays, therefore, in this Spanish church are equal to eight English ones. In Italy, the cathedral at Florence goes even beyond this; its bays having the enormous span of sixty feet.

It is, of course, an advantage, as far as the congregation is concerned, to have wide bays, and as few columns as possible; but, on the other hand, there are three special difficulties in the way. In the first place, the wider the arches, the greater their rise, and, consequently, the higher must be the entire structure; secondly, greatly enlarging the bays tends to lessen the apparent size of the building, or technically to destroy its scale; finally, the vast unbroken spaces have a straggling, bald, uninteresting effect, unless minor arcades, double-aisle compartments, and groups of windows, be introduced to break the lines, and aid the eye in realizing how vast the main arches are.

We thus see that the great difficulty in regard to numerous columns is the obstruction of the view, and, on the other hand, by using fewer of them, we gain relief only to incur the objections before enumerated. We think the way to solve the problem is not to increase the spaces, but to make the columns themselves smaller; and in these days, when cast-iron—a material but little known in mediæval times—seems to meet the difficulty, by giving in a column of ten inches diameter the same strength contained in several feet of stone, we believe the demand for such a reduction will warrant their employment.

It will, likewise, greatly facilitate the view of the pulpit, to range its centre directly with the line of columns, as in the present instance. In fact, although there are a number of columns, really not more than one can obstruct the view. On the contrary, should the pulpit be moved a foot beyond this centre, no less than two feet of its totality will be hidden from the opposite side; and as the pulpit has but two feet six inches interior diameter, it need be but fifteen inches out of centre to be entirely hidden from many parts of the church.

PLATE 17.

DESIGN 7.

PERSPECTIVE VIEW.

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CHAPTER IX.

CHURCH FITTINGS.

The lofty walls of the cathedral or unpretending nave of the village church being completed, consideration must next be paid to those internal fittings required by our services. This is not the unimportant matter it may appear to those minds whose ideas of appropriate church furniture would be as well met by a mahogany marble-top table, a lumbering desk, and two or three drawing-room arm-chairs, as by the lofty reredos, the gorgeously-vested altar, and all the "glorious apparel" with which a revived Church has decked herself to meet her coming Bridegroom.

Inasmuch as it is in the chancel that the most Holy Sacrament is offered up, it is here that the altar is erected; its place unmistakably marked by the dais on which it stands, and by the dossel or reredos—which is a lofty screen of wood or marble, placed, as its name implies, behind the altar, and richly or simply decorated, according to the means at our disposal. It is either canopied at top, or terminates in mounting pinnacles, enriched with crockets. On the reredos may be painted or carved sacred symbols, and scenes from the Passion of our Lord; or it may be merely decorated in diaper, enriched by monograms of the Saviour, or inscribed with appropriate sentences, such as, "I am the true vine;" "I am the bread of life;" this is not, however, the proper situation for the Tables of Commandments, which should be placed against the northern wall of the church.

Surmounting the altar may be a narrow shelf, called variously the retable, super-altar, or altar-gradine. When this is introduced, it holds the altar-cross, altar-lights, and flower-vases; but if we are to be guided by the late English decisions in the Court of Arches, by which

the lights were declared illegal, the super-altar may very well be dispensed with, and an illuminated cross occupy the central panel of the reredos.

It was anciently the rule to construct altars of stone; or else with a slab of stone let into the centre, called the *mensa*. On the latter was carved five crosses, to signify the five wounds received by the Saviour at His crucifixion. The stone altar was made illegal in Elizabeth's reign, but it is equally proper to carve the five crosses on the wooden top of the holy table.

We would advise the reading-desk or lectern to be placed at the southwest corner of the chancel, convenient to the prayer-desk. The proper place for the Litany-desk is at the east end of the nave, facing the entrance of the choir. Both should be properly vested in colors appropriate to the various seasons.

The credence table, or prothesis (for holding the sacred vessels, alms-bowl, etc.), should be fixed against the north wall of the chancel, and the piscina (for receiving the ablutions) on the south. Near the piscina is situated the aumbry, a cupboard for holding the sacred vessels when not in use, taken out of the thickness of the wall, and secured by an oaken door, having floriated iron hinges. Adjacent to the piscina are the sedilia or seats for the clergy. These vary in number from two to five; usually three are employed, raised one above the other, according to the rank of those who are to occupy them. The sedilia are sometimes of wood, and sometimes niched into the thickness of the stone wall. They may be canopied or otherwise. The two high-backed arm-chairs which in most churches stand at the north and south ends of the altar, against the east wall, are wholly inadmissible. Neither do we know of any authority for a so-called "bishop's chair." Strictly speaking, a chair is only temporarily placed for him at Ordinations and Confirmations, in order that the candidates may be brought up one by one, and kneel before him; but this is placed in front of the altar, not at the end, and is simply a faldstool or folding chair; and not a monstrous erection of oak or black walnut, decorated with all the insignia of mitre, cross-keys, and crosier. The Bishop's chair *par excellence* is his throne in his own cathedral.

The seats for the choir may be simple, open stalls, with "poppy-head" ends, or enriched with elaborately carved canopies, and the ends of the music shelf carried up very high, and also richly decorated.

The sanctuary rail should be very light and open in character; and when of wrought metal, gilt and colored, has a very pleasing effect.

The proper lights for the chancel, exclusive of the symbolic altar-lights, are the large, many-branched candelabra, or standards of wrought metal, which have lately been introduced in our churches, and the "corona," or crown chandelier. These have nothing symbolic about them, being intended merely for purposes of illumination. We cannot forbear protesting in this place against the use in the chancel of standards of imitation candles of porcelain, lighted by gas; an untruthful and unchurchly practice, to say nothing of the blinding glare so trying and hurtful to the eyes. There is the same esthetic reason for the avoidance of porcelain candles as for the exclusion of artificial flowers. Both are shams and pretences of being what they are not, and nothing untruthful, as we have so often urged, should be admitted in the service of the sanctuary.

Finally, the rood-screen of carved wood or wrought metal-work, filling up the lower half of the chancel arch, and surmounted by the cross, seems fittingly to shield the abiding place of God from profane or careless approach; while the central gate, or holy door, may, perhaps, be taken as an emblem of that strait and narrow gate by which alone we attain eternal life.

In consideration, however, of the prejudice against rood-screens, as well as the fact of their being apt to obstruct the view of the chancel, we would advise their omission as a general thing, and in lieu of them construct a stone coping of sufficient height to protect the chancel, though in no way hiding any part of it; the cross in this case being illuminated over the chancel arch. (See plate 23.) We find the authority for this coping in the ancient basilicas, or first Christian churches; and their symbolic value is the same as that of the rood-screen, while offending no prejudices.

Next in importance to the altar is the font; the visible means to administering the second Sacrament of Holy Church.

This should not be of small size and meagre ornament, without cover to preserve it from the sacrilege of being taken as a hat-stand, as we have frequently known to be the case. Nor should it be moved from place to place at the caprice of each succeeding rector or vestry. The ancient position for the font was near the western doorway; thus symbolizing the truth that it is through baptism alone we enter the Church. But as the sacrament is now generally administered during Divine Service, such a position is inconvenient; as in that case the ceremony must proceed at the backs of the congregation. It is, therefore, equally proper to place it near the eastern entrance; the symbolism being the same. In continental churches, small chapels, called baptisteries, are frequently a part of the edifice, but English examples of mediæval date are rare. There should at all events be some distinct architectural feature to mark the position of the font, such as its being raised by two or three marble steps, so that the most thick-headed vestryman in existence should be forced to see that it looked well in no other place. It should also be of sufficiently massive character to make its removal a matter of considerable difficulty, if not absolute impossibility. In all cases it should be closed, as in ancient examples, and it is well to have this cover rise in a lofty spire surmounted by the Cross, and elaborately decorated. It should be secured with lock and key. This not only forms a beautiful architectural feature, but effectually prevents the use of the font as a seat; which might be the case were the cover flat. There should also be a drain to let off the water immediately after use.

Having arranged the altar and font, the pulpit next claims our attention. According to Viollet-le-Duc, the introduction of the pulpit as a distinct feature dates from the thirteenth century. Before that period, occasional addresses were delivered from the rood-loft surmounting the rood-screen, or from a movable wooden stage enclosed on three sides. But when the sermon took a regular place in the services, it became needful that there should be some recognition of the fact in the building itself; and marble or stone pulpits were introduced. At first they took the form of a balcony carried on corbelling in front of a niche in the wall,

which acted as a sound reflector, and were approached by a small staircase in the thickness of the masonry. Afterward they resembled more nearly those that we now construct, but were almost invariably composed of costly marbles. Copies in plaster of some superb Italian pulpits are among the art treasures of Kensington Museum. The decorations of this, however, as of everything outside the sanctuary, should be kept in strict subordination; for nowhere in the teachings of the Church do we find it laid down as a principle that the sermon is the leading act of our worship.

The position of the pulpit is of the utmost importance for acoustic reasons. The great question is, from what point the voice may best be heard in all parts of the church. It was formerly the custom to place the pulpit in the centre of the chancel; but this was in an age when the chancel was a mere shallow, railed-off recess, and not what is now known as such, comprising choir and sanctuary. With our present more correct arrangement, if the pulpit be placed directly under the arch, the speaker's voice is swallowed up in the chancel behind, while it is always unpleasant to a clergyman to have the blank central alley before his eyes. The altar is likewise hidden from view, and the congregation, perhaps, exposed to a glare from the great east window—a circumstance often trying in the extreme. We think the true position of the pulpit, therefore, is on the north side, a little in advance of the chancel arch, against the east wall of the nave. This not only obviates the unpleasant necessity of looking straight at a huge window, against which the preacher's form appears like a mere black shadow, but the wall acts as a reflector, and assists in throwing the voice into the body of the church. There is also a significance in the pulpit being to the north of the chancel, coinciding with the "Gospel side" of the altar—as indicating that the ministers of Christ are to preach His Gospel unto every creature. It will be found of immense assistance, in an acoustic point of view, to erect an *abat-voix*, or voice-reflector, over the pulpit. Mr. Blomfield, an English architect, speaking on the same subject, says: "There seems at present to be an unfounded prejudice against sounding-boards. This is probably owing to

the monstrous erections of the last century, which seem, by some suspension of the laws of nature, to be balancing themselves on one corner, ready at a moment's notice to shut down on the preacher like the lid of a trap. Although apparently of enormous weight, they were, in fact, made of thin boards, and comparatively light, and were altogether shams and abominations; but because they were bad in design, I see no reason why sounding-boards should be condemned altogether, and, I think, that when there is any reason to suppose it may serve a useful purpose, it would be better for the architect to incorporate a sounding-board with his design, and put it up at once with the pulpit, than to run the risk of his work being disfigured by its addition hereafter in an inappropriate manner."

It has sometimes been thought that the lofty arches and open timber roof of a Gothic church interfered with distinct hearing, but in fact this is not so, for it has been found that a flat-ceiled auditorium is much more liable to echoes. It is a well-known fact that a long tube or pipe is a superior conductor of sound —a whisper at one end being heard with perfect distinctness at the other—and the vista of nave and aisles, with pillars on each side, and arching roof overhead, acts in much the same manner.

Sir Christopher Wren gives as the maximum for distinct hearing an auditorium ninety feet long and sixty feet broad, while a larger space than this it is difficult to fill with the voice. It is unfortunate that this great man did not live at a period more favorable for Gothic art, but even building the classic edifices that he did—though the temptation must have been great, in view of the advance made in their construction, to make the roofs a single span, and avoid columns—yet in no instance has he departed from the form of nave and aisles; doubtless on account of the acoustic principle mentioned above.

When an echo still exists from some unexpected cause, it may sometimes be checked by the erection of galleries; but these again are open to the objection of obstructing hearing in the aisles immediately below, to say nothing of their highly unarchitectural and ungothic effect.

We would advise that galleries should be abandoned altogether, since the prin-

cipal argument in their favor—the attaining an increase of accommodation at a limited expense—is, to a great extent, erroneous. When we consider that from their total area must be deducted the numerous passages requisite through their length, as well as the passage at the back, and the space occupied by the pillars of the nave, we shall find that nearly one half of their space is thus taken up; and as with galleries it becomes necessary to carry up the outer walling to a greater height than would otherwise be required, their *economy* can scarcely be brought forward as an argument. On the score of beauty and architectural propriety they cannot be defended for a moment. They cut up the windows and piers into two or more pieces, obstruct the view of the interior, are noisy, ill-ventilated, and interfere with the circulation of air in the aisle beneath, and by over-crowding assist materially in creating bad air throughout the building. Add to this the inconvenience arising to the sitters therein in going to receive Holy Communion, and the certain danger to life and limb which would attend a rush down their narrow stairs in case of fire occurring during service, and we think a sufficient number of reasons have been adduced, architectural, sanitary, and, as we have said before, acoustic, against those awkward abominations—church galleries. If for some extraordinary reason they cannot be dispensed with, they should be confined to the transepts only.

Finally, we must not omit to consider the vexed question of pews. These, we wish, with all our heart, could be at once done away with, as they not only interfere materially with the architectural effect, by burying up the bases of the pillars, but we think are contrary to the spirit of true religion. Sold to the highest bidder, and secured under lock and key, even when their owners do not attend service, they frowningly repulse the poor and the stranger, and virtually shut them out from the house of Him to whom the poor and the stranger are "joint heirs with Christ." And so the poor man leaves the Church with an aching heart, perhaps to be led like a wandering sheep into the fold of Rome; perhaps to be enticed by Mormonism or Spiritualism, or only too frequently into the drinking shop. How many a youth, coming a stranger to

one of our large cities, away from the influence of home, owing to the lack of a genial welcome in our churches, has left God's House in utter disgust! His Sundays are thenceforth spent in idleness; he is gradually led into bad company, and thus takes the road, if not to utter destruction, yet tending to a callousness of conscience, which "grows with his growth, and ripens with his years." Perhaps if the Church exercised a deeper influence over young men, we should not have so many venal politicians, fraudulent bankrupts, and defaulting tradesmen. Let us hope that the day may soon come when the pew system shall be entirely abolished—movable forms, or even chairs being substituted, either of which afford the worshipper the opportunity of kneeling, as required by the rubrics, instead of the half-crouching, half-sitting position, at present the only one possible in most churches.

Pews, indeed, as locked, and *private* divisions of an edifice intended for *public* worship, are a totally different affair from the low, simple, open benches that in mediæval times bore the name. They assumed the former character in the days of Puritanism; the leading idea of which seems to be to look after one's own welfare, in as selfish and exclusive a manner as possible, shutting out everybody else, and leaving them to get along as best they may—if we do not actually persecute them. As these Puritan pews were formerly constructed, with high-cushioned backs, and surrounded with curtains, they were certainly better adapted to encourage lethargy than devotion, and, we read, were built with the intention of evading compliance with the rubrics, by hiding the occupants from view (Charles II. having imposed a fine on all who refrained from rising, bowing, etc., at the prescribed times). As they were furnished with seats all around, of course one half the congregation were placed with their backs to the chancel, thus offering a direct insult to the Sanctuary itself. A stove in one corner, and a centre-table, completed the furniture of the enclosure, which so entirely secluded its occupants as to destroy the idea of *public* worship. These monstrous erections have been modified, it is true, but they are still far too luxurious. We are not enjoined to be listless and indolent in the service of God,

but ever on the alert, ready, like good soldiers of Christ's Church Militant, to "watch and pray."

At present, even when a few free seats are allowed in the churches of the wealthy, they are situated in such dark, cold, draughty corners, out of sight and hearing, as render them unsalable at the high price demanded; as though the committee were resolved on exactly reproducing the unchristian and unloving spirit reprimanded by St. James in his Epistle, where he says, "If there come unto your assembly a man with a gold ring, in goodly apparel, and there come in also a poor man in vile raiment; and ye have respect to him that weareth the gay clothing, and say unto him, Sit thou here in a good place; and say to the poor, Stand thou there, or sit here under my footstool: are ye not then partial in yourselves, and are become judges of evil thoughts?" "But if ye have respect to persons, ye commit sin, and are convinced of the law as transgressors." (See plate 18.) Such a commingling of both systems is pretty sure to prove a failure. In one instance we have heard of, a well-meant effort in the other direction met with still more signal defeat. The vestry of a certain church, having had the remark made to them that the poor of the parish were not comfortably provided with free seats, forthwith most amiably announced that a number of the *best* seats, near the chancel, would in future be free to all who could not afford to pay pew-rent. Sunday came; the good people of St. ——'s marched into church, feeling that now, indeed, they had done the thing as well as the greatest caviller could wish,—but, to their unqualified astonishment, the free seats were totally empty!

The following day inquiry was made into this seemingly ungrateful conduct on the part of the poor, when the very natural reason came out, that no one cared thus publicly to expose their penury, and undergo the mortification of appearing as dependents on the vestry's generosity. No, the true way is, to make all the seats free, and let the first one who comes take the first seat: "For God is no respecter of persons." And although we do not like the introduction of anything pertaining to politics in Church matters, yet we may be allowed to say, as members

of a republic, that it is in opposition to our principle, that all men are born free and equal to make this difference between the accommodation of rich and poor.

It may be said that the churches would in that case be overflowed; but why should we not build more and larger churches? Others will object that the income of the Church would be cut off; but the first objection answers this, for with the increased number of worshippers, and the consequent more frequent services and celebrations required, the offertory would be augmented in proportion. Moreover, true Christian charity, as demonstrated by St. Paul, "seeketh not her own; gives, and asks not in return." Let the rich man who has been paying several hundred dollars pew rent, add that amount to his ordinary contributions; and no one is so poor as not to be able to give a "widow's mite" in return for the Church beautified, and her services carried out to the fullest extent. "Freely ye have received, freely give."

But *will* the Church-goers thus contribute to the support of a church which affords them no cushioned and carpeted pew, with locked door and ostentatious silver name-plate? Certainly they will—and give more. This is no mere surmise of the author. In England, where the free seat system has been thoroughly tested, both in old churches where pews have been abolished, and new ones starting on this basis, it has proved a perfect success, and the income, far from falling off, has in many instances been doubled.

We cannot forbear inserting in this place the address of the parishioners of St. George's, Hanover Square, one of the most fashionable churches in London, to the wardens, on the evils of the pew system. We think it as good an argument as we could adduce against this unchristian shutting up of God's House:

HANOVER SQUARE, February, 1870.

To the Churchwardens of St. George's:

GENTLEMEN: We, the undersigned parishioners, received, some time ago, a circular respecting the present deplorable state of St. George's Church, and the diminishing funds from which the income of the incumbent is supplied. The subject is one of great importance. The fact that one of the largest and finest churches in London, built at an enormous cost, situated in the wealthiest part of London, should be in the condition described, seems to us to demand a careful inquiry into the cause of so remarkable and lamentable an effect.

THE DEFORMATION.

FIG. 1.

THE REFORMATION.

FIG. 2.

THE HOUSE OF GOD

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We venture to suggest that such an inquiry will show the causes why this spacious and handsome church has ceased to attract congregations, and is, in fact, comparatively deserted, are the following: 1. The unseemly and bad arrangement of the interior. 2. The infrequency and length of the services. 3. The infrequency of the celebration of the Eucharist, and the consequent loss of the resources of the offertory. We beg to say a few words on each of these subjects:

1. The church seems to have been originally fitted up almost exclusively for the rich, at a time when devotional feeling and taste were at a low ebb. High pews, built at much expense, rendering invidiously prominent the distinction between rich and poor, marring the appearance of uniformity in the mode of worship, unfavorable to devotion, favorable to slumber, occupy and disfigure the area of the church. The poor are confined to scanty and uncomfortable seats, in which kneeling, as the Church directs, is physically impossible, and rarely or never attempted. We think that these arrangements should be remodelled, the pews should be removed, low, open benches should be introduced, so that the interior may be that of a church equally available to all.

2. The injurious effect of three services and a sermon, piled together from eleven to one, and the subsequent rather unattractive service from four to five, are best proved by reference to experience of the contrary system. Her Majesty's chapel at the Savoy, is in an obscure street, leading out of the Strand; it was formerly maintained by the unsatisfactory system of pew rents and close seats, was little known, and less frequented. It was burnt down in 1864. It has been rebuilt in the best taste and spirit, under the directions of her Majesty, who has ordered the seats to be free, and the offertory to take the place of pew rents. The chapel is now so crowded that it has become necessary to have an early communion at 8:30, service from ten till eleven, service at 11:30, and so on. The reason of this great change cannot be misunderstood. It is clearly because there are no high pews, nor distinctions between rich and poor; because the interior is devotional, rich, and decent; the services frequent, various, and attractive; the church constantly open. The Church of All Saints, Margaret street, is crowded from morning to night with worshippers and communicants. These two instances are selected, out of many, in this metropolis. But we believe there is no instance where a like result has not followed on a like improvement. We have no doubt that restoration, effected on these principles at St. George's, would bear further testimony to the general and increasing inclination for shorter and for choral services, equally accessible to rich and poor.

3. This appears to us worthy of special consideration. The success of the weekly and festival offertory, where the services and interior arrangement of the church are such as we have adverted to, has exceeded the most sanguine expectations. St. George's Church lies in one of the wealthiest districts of this town; there are churches situated in places of far less opulence and splendor, in

which the offertory has amounted to more than £1,000 per annum; and in one, if not more, that amount has been more than doubled. We have abundant evidence that people in this great and rich country will give freely in churches where their hearts are touched, and their devotional feelings called forth, where the service is full of life, where it does not repel by its length nor weary by its monotony the average class of congregations. At all events, the experiment will be worth the trial, inasmuch as the failure of the present system is admitted to be complete.

We indulge a sanguine hope that if there were continual services in St. George's for all, some plain, some choral, with good music, such as the church with its fine organ can now command, this comparatively empty church would be filled with worshippers from every class of the large parish for whose religious benefit it was built, and that the offertory would extract from their willing hearts an income equal to that which the exclusive system of pew-rents ever yielded, and far exceeding the reduced amount which it now with difficulty supplies.

(*Signed,*)

Robert Phillimore,	Emily F. Beaufort,
C. A. Phillimore,	Arthur Walsh,
H. Donoughmore,	Emily Walsh,
Londesborough,	R. Charteris,
Edith Londesborough,	Margaret Charteris,
Carnarvon,	Warren de Tabley,
Templemore,	Salisbury,
Augustus Duncombe, Dean of York.	
G. Salisbury,	Clinton,
Harriet C. Duncombe,	Harriet Clinton,
Alice Enfield,	A. B. Wilmot Horton,
Edward Hulse,	George Fortescue,
Delamere,	Louisa Fortescue,
Augusta Delamere,	Bath,
Percy Burrell,	F. J. Bath,
Henrietta Burrell,	Edwin Saunders,
W. S. Forsythe,	A. O. Prickard, and others.

Such is the testimony of noble and influential members of the Church, and, we think, no one will question its justice and good sense.

We generally find that in a free church the disposition is to form Sisterhoods and Brotherhoods among the charitable, who materially aid the clergy in visiting and relieving the sick poor of the parish. Thus a spirit of enlarged beneficence is among the good results of the system. A greater number of children, who would otherwise be destitute of religious instruction, are also brought into the Sunday and parish schools. We may say, in connection with this subject, that there should be a preference given in the formation of the boy-classes in the parish school to those boys who have good voices and can be placed under training for the choir. Thus a constant succession of chor-

isters will be secured, from which country churches may be supplied.

And finally, with our beautiful services well and widely known and loved among the masses of the people, the field and influence of the Church would be increased an hundredfold; she would advance to her rightful place, and be in all time to come first in the hearts of the nations upon earth.

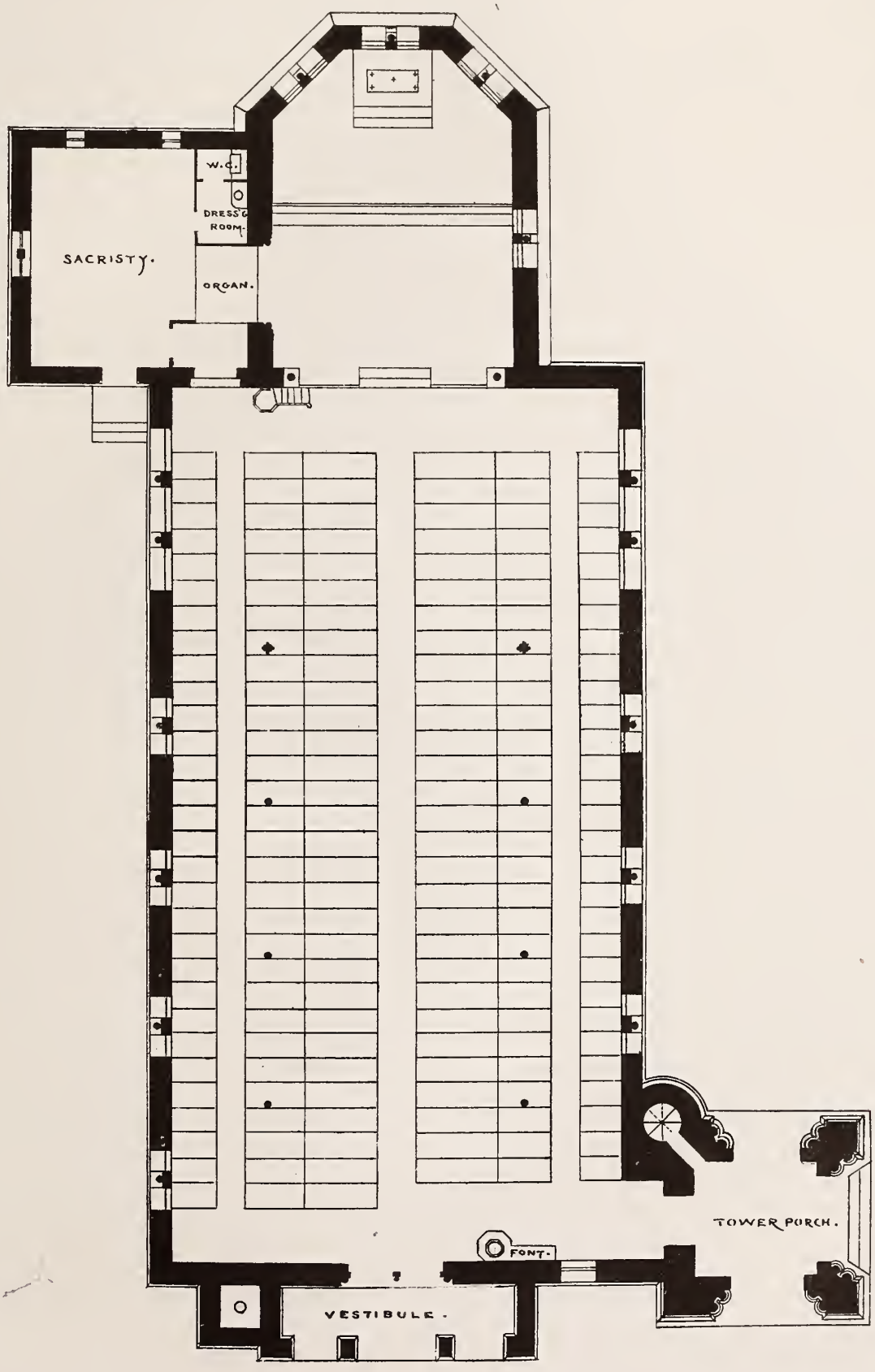
DESIGN VIII.

Sufficient stress has not been laid, we think, on the impropriety of using the church for other purposes than the worship of God. It is not unfrequently the case that entirely outside matters, though connected, to be sure, with the church, such as Sunday Schools, parish meetings, anniversaries, and the like, are held there with as little scruple as though actually a part of the liturgy.

We have in mind the case of an individual, the head and front of a certain small country parish, who not only insisted that the Christmas festival for the children should be held in the church, but would have it that their presents should be spread out upon the altar. In vain did the rector endeavor to convince him that what he proposed was little less than sacrilege—the wealthy parishioner was immovable. He had in fact the idea, as he had built the church and paid half the minister's salary, that by doing these good works he patronized the Lord pretty handsomely; and consequently, in the direction of Church affairs, should represent infallibility in person.

What was the rector to do? He had to live, and understood full well that in case of his continuing to resist, his stipend, small as it was, would probably be reduced one half. Still, he stood firm for the right, and the result was that, instead of his usual Christmas remembrance, he received an intimation that if he chose to remain in the parish, it would be under the loss of that half of his salary contributed by Mr. ——.

What remained was a sum so utterly inadequate to the wants of his family, to say nothing of the duties of charity and hospitality incumbent on his position, that he was fairly driven from his flock, to whom he was devotedly attached, to seek a parish where more respect for sacred things could be maintained. Let no one think this an exaggerated view of the case, for surely, if we believe the church to be "the house of God, the gate of Heaven," if its consecration to His ser-



Ground Plan.

40 30 20 10

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

vice, and the celebration of the most sacred mysteries of faith within its walls, have any hallowing effect whatever, it must be profaning that holy place to intrude upon it anything not directly pertaining to the Liturgy.

The same objection does not exist against a room for these purposes under the same roof, provided it be distinctly separated from the sanctuary. Every cathedral and collegiate church formerly had its chapter-house,—a hall of meeting for church business,—and these were often very superb; stained glass, encaustic tiles, and painted roofs lending their aid to make the chapter-house worthy of the noble edifice to which it appertained. Similar halls, either detached or incorporated with the church, would be very proper at the present day; though scarcely of equal pretensions, unless attached to a cathedral, and would serve at the same time for lecture-rooms, Parish and Sunday Schools. Frequently, however, a transept separated from the body of the church by a portable screen, as in design 6, may serve the purpose, and also have the advantage, in case of overcrowded congregations, of being readily thrown into the auditorium by the removal of the screen.

When detached from the church, these buildings may assume the form of a chapel, which, though not privileged to have the Sacraments administered within its walls, may appropriately be used, not only for the purposes we have indicated, but also for daily prayers, when the congregation is not sufficiently numerous to warrant the opening of the church.

In the present instance we have located a room for Sunday Schools, etc., in the basement, as owing to the peculiar slope of the grade from west to east this story is entirely above ground.

The design presents marked Italian characteristics, the most prominent being the tower, which serves as a southern entrance, the belfry stairs being in a small outside turret. It is bold in treatment, the middle stage perfectly plain and rigid in character, contrasting strongly with the elaborate detail of the lower stage one of whose enrichments is a band of bas-reliefs above the arches, a mode of treatment peculiar to Italian Gothic. The motive for confining the more delicate ornament to the lower story, is ob-

viously that if placed too much above the range of vision, the greater part of its effect is lost. The bolder enrichments will, of course, occupy the distant and elevated portions of the edifice.

Another peculiar feature is the continuation of transept roof above the ridge of the nave, having somewhat the effect of a rood tower. Prominence is also given it by the introduction of the tapering lantern.

As we have before stated, much effect may be imparted to a building, in the absence of buttresses or other projections to relieve its surface, by the use of string courses having a strong contrasting tone of color. For these it will be proper to use stone of a softer character than that of the walls, being more susceptible of ornamental rendering. Care should be taken, however, that this material be of a nature to withstand the action of the weather, and wear of time. The Caen stone, for example, which is used successfully in France and England, has proved unequal to endure the asperities of our own climate, or that of Canada; displaying, in many cases, a perilous tendency to crumble; and with the warning of the Houses of Parliament before us, which are literally dropping to pieces before they have been built twenty years, we cannot fail to appreciate the importance of selecting for our buildings a material which is proof against decay, as far as that can be said of any thing earthly.

PLATE 20. DESIGN 8.

A.M. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNE'S PROCESS.

Perspective View.

CHAPTER X.

COLOR DECORATION.

In all good architecture, from the earliest ages, color has been recognized as an important accessory. From the stupendous monuments of Egypt and Assyria, the graceful remains of Pompeii, and more elaborate buildings of Athens and Rome, we gather the indisputable fact that color was universally employed; and never do we strip the desecrating coats of Puritan whitewash from the walls of a venerable Gothic church, without finding underneath traces of the admirable mural painting, which once so greatly enhanced its beauty. Even among nations which we have been accustomed to consider almost barbarous—the Hindoos, Persians, Chinese, and especially the Arabs —we find the most exquisite designs and choice of colors. Owen Jones, in his "Grammar of Ornament," has given illustrations of the colored decoration of all these, as well as more refined peoples, and they are models to be studied by every designer of this class of ornament.

The sister arts of architecture, sculpture, and painting, go hand-in-hand; and unless they are all combined, a monumental structure can hardly be called complete. Just as a steel engraving can give us but a partial idea of a fine painting, all the warm tone and harmonious depth of blended tints being lost, so the building is but a mere architectural outline, however perfect the masonry and rich the details, unless the hand of the painter has animated its sombre masses through the *spirituelle* and enlivening influences of color.

There are various ways in which color decoration may be applied, from the most elaborate arabesque to the simplest following of the leading lines of masonry; and frequently the whole appearance of

a building may be materially altered by this means. For instance, too low a structure may be improved by multiplying vertical lines on the walls, and giving to the roof a receding tint; or the height may be reduced by a dark color on the roof, and horizontal bands on the walls. A bare, cold-looking expanse of plaster may be turned into a "thing of beauty" by means of a dado, or space of dark color, about the height of an ordinary wainscot, surmounted by a border of brilliant polychrome, the remaining space being stencilled in diaper. Again, a window which has no label-moulding has the same emphasis given it by a line of painting; and string-courses can be simulated with fine effect by bands of rich color on a buff or parchment-tinted ground. The mediæval painters frequently made use of the vellum tint, perhaps on account of its similarity to the vellum missals they were accustomed to illuminate; for in all probability the monks were the authors of all this lovely decoration, which in former times was the rule, not the exception. It is a peculiar characteristic of Gothic painting, we should remember, that nothing like shadow or perspective is introduced; the colors are all flat, plain tints, and this rule we should rigidly follow. It is a curious fact, too, that flat conventional treatment is really most pleasing to the eye, and though not an actual representation, happily and successfully reminds us of nature, as it were, by a beautiful symbol. In another case of conventional treatment—the eagle lectern—it must be admitted that no real representation of an eagle could ever approach in grandeur and fitness those quaint and magnificent birds with outstretched wings and upturned heads which symbolize eagles, and are really best when least like them.

As for the attempts made by those tyros, whose highest idea of decoration consists in painting sham mouldings, arches, pillars, and even perspective chancels on flat walls, they are only worthy of the renaissance which fostered them. And yet these very men are so wise in their self-conceit, that they imagine wisdom shall die with them, and after them shall come the deluge of mediæval (?) darkness.

It may be useful to suggest a few modes of color decoration culled from ancient examples.

For instance, take a small country church, where the ornament is required to be cheap and simple, yet effective. We might choose as a model for this the parish church of Little Coggeshall, England, a good specimen of the class. The walls are covered with a diaper of red, with green *fleurs-de-lis*. The wall-plate has red in the hollow, and a delicate shade of ultra-marine green on the projecting roll of its mouldings; the spandrels are decorated with a flowing foliage pattern of early English character; while the floor is inlaid with brown, green, and red tiles. The whole is perfectly simple, and the effect warm and life-like.

Then for a richer effect, let us take, as an example, a large church of elaborate design. In each of the spandrels, between the bays, is a rich and bold centre-piece, perhaps a geometrical Gothic figure, charged with a sacred emblem or monogram. This is surrounded by scroll-work of the thirteenth century, richly colored, in flat tints, starting from behind it and following the form of the spandrel. The surrounding walls are covered with a diaper in gold and colors. The mouldings are richly colored and gilded, the capitals of the pillars illuminated, and the open timber roof tinted blue between the rafters, and powdered with gold stars. The rafters themselves are enriched with lines of color and gold. The spaces over the arched windows are relieved by a ribbon bearing a text in black letter. This is known as legendary decoration, and may also be introduced on string-courses, cornices, and arches.

A very beautiful example of the adornment of a church, with texts appropriate to every part, is a small chapel in Luton, Bedfordshire, which has the following: over the principal doorway are the words—"The House of God is the gate of Heaven;" on the north and south side of the entrance—"Praise Him ye young men. Praise Him ye maidens" (Psalm cxlviii. 12); over the eastern door—"This is the gate of the Lord, the just shall enter in" (Psalm cxviii. 20); on the north wall are the words—"I will wash mine hands in innocency, O Lord, and so shall I come to Thine altar" (Psalm xxvi. 6.) On the altar are the names of our Lord in Hebrew, Greek, and Latin; and on the reredos the following passages: "We have

an altar;" "Eat ye all of this;" "Into which the angels desire to look;" "Do this in remembrance of Me." Even the singular feature of a chimney-piece has this inscription from Gen. xxii. 7: "Behold the fire and the wood: but where is the victim of the whole burnt offering?" We meet with another instance in which over a church door, on the outside wall, is the following Latin couplet:

"*Pax tibi sit quicunque Dei pentralia Christi—*
Pectore pacifico candidus ingrederis:

exhorting all men to enter the church with a pure and honorable heart.

And on the inside we read:

"*Quisquis ab æde Dei perfectis ordine votis,*
Egrederis, remea corpore, corde mane:"

requiring all those who go out of the church to leave at least their hearts behind them.

Another mode of relieving the wall surface is by the introduction of mosaics, formed in encaustic tiles, alabaster, brick, and terra-cotta; or by the use of "sgrafito," which is black or colored cement laid in incised lines on the face of the work. The colors of the tiles are mostly red, black, and yellow; the red ones have frequently a yellow pattern after the ancient examples. Alabaster is generally used in the reredos, and colored marbles about the pulpit and font. The "sgrafito" is a novelty in this country, but in many fine modern English churches has been used with good effect, not only in lines of geometrical tracery and foliage, but also for figures and emblems.

The space over the chancel arch affords a fine field for ornament; and a superb decorated cross will here have a noble effect. This may be either inlaid in tiles, or mosaic, or painted and gilt, and surrounded with elaborate devices. Another mode is to represent the figure of Jesus over the centre of the arch, in a "*vesica piscis*," or glory, surrounding the entire figure—so called from its supposed resemblance to the shape of a fish—with angels bearing censers on either side. All the decorations should, however, be subordinated outside the chancel, and the sanctuary should as far excel in the splendor and amount of its ornament every other portion of the edifice, as the palace of an earthly king exceeds the residences of even his wealthy subjects. Evidently there is here a wide

field for the man of cultivated artistic feeling and love of pure Gothic. Such an one can find no better exercise for his fancy and invention, than in composing and varying these admirable decorations. We can hardly do better, however, than refer back to the works of the past; and particularly such restored examples as the Saint Chapelle give us an idea of the lavish beauty and richness which the builders of those pious ages thought it no extravagance to pour out on their sacred edifices. Would that the same spirit might obtain in our day! Then we should no longer see cold, shabby, barren churches, whose interior seems to whisper of parsimony and mean pinching economy; or, still worse, the Puritan prejudice and want of taste of their builders.

It will not be amiss, while on the subject of color, to speak of that noble and appropriate adornment—stained glass. It is most deeply to be regretted that the secrets of the mediæval workers have been lost. The art by which they produced those jewelled effects, that translucent flood of rainbow light, we know nothing of; and the vast majority of the specimens they left in England were most cruelly destroyed in the time of Cromwell's administration.

Still, from the rare fragments that are left there, and the more perfect remains on the continent—notably in the Saint Chapelle—it is possible to form an idea of those glorious works of art, and there seems to be but little chance of modern artists rivalling them. Still, a great advance has been made over the days when stained glass was only to be had from the hands of the plumber, and a bordering of alternate lilac, orange, and blue squares, surrounding the plain glass, was thought quite a fine thing in the way of a church window.

It is curious that with the profound knowledge they showed of flower and geometrical drawing, the mediæval glass-stainers seem to have had little or no idea of the anatomy of the human form, or of perspective, yet the very quaint archaic drawing of the saints and angels on their windows makes them more characteristic and interesting. And there can be no doubt that it was partly done on principle, for glass staining properly does not admit of shading or rounded

outlines. Everything should be represented flat; and the colors contrasted rather than blended,—just as we have described in wall painting. The large amount of leading, too, has a great deal to do with the effect. This was adopted not as an expedient—because the poor ignorant "dark-ages" men could not make such fine large sheets of glass as ourselves—but because the very object was to present a transparent mosaic, that these pictures were composed of separate pieces leaded together, instead of the design being painted on a plain surface like a picture on canvas. As shadows are impossible (properly speaking), the outlines of the figures require to be emphasized by the leading, while enamel painting neutralizes the exquisite transparency of the glass, making it more like oiled paper or porcelain, and at once destroying the peculiar effect of the old work.

The Italians, subsequent to this original style, had a very beautiful method of staining glass, which unfortunately has also died out. They went in for light and color *con amore;* and designed for breadth of contrast and vigor of effect, figures, architecture, fruit, flowers, and then leaded them all together, regardless of atmospheric effect and perspective; and the result was architecturesque and grand in the extreme. But their successors took to painting in enamel perspective pictures, and the art of glass staining was at an end. With the religious and political troubles of the fifteenth century came the lowering of public taste, and the cessation of the demand for good art of any kind.

It is a cheering circumstance that this demand is reviving, and artistic work is beginning to be appreciated. And although we do not yet know how to produce the jewelled effects of the mediæval workers, still, some of the rules which undoubtedly governed them may be deduced, and, if followed, will go far to ensure success. First, the use of broad, clear tints, with dark shades in the fewest possible places, for there ought to be no modulation in glass, and the whole formed of separate pieces, leaded together after the manner of a mosaic.

Second, the conventional treatment of figures and drapery; while in place of ærial perspective the glass-stainer should only suggest (however untruly in a real-

istic sense) proximity by strong colors, and distance by the more delicate.

Glass is preëminently a thing of light and color, and as such it should always be treated. We cannot do better than conclude by quoting the words of an English writer on the subject, speaking of the wealth of glory, light, and beauty at the command of the artistic worker in this beautiful material:

"Let the glass-stainer do honor to his glass! Let there be no hesitation about it, no wretched condescension to mislead those who gaze upon it. Let it be glass without mistake; parading nothing, pretending nothing, but honored even in its weakness and treated with justice even to its defects. Why envy the qualities or even the excellences of other arts? or why dread the genuine light of day—the open sun and passing cloud? (which are as death and destruction to the oil and fresco painter).

"Have you not gems to play with? a very flood of gems to toss about and let your thoughts revel in? Do you fear their gayness and vivacity? What if the diamond, ruby, and emerald have a fire which no art can equal save yours alone, have you not also the mellow richness of the jacinth, the softness of the chrysoprase, the tenderness of the pearl? If you fear them, leave them! If you use them, let it be within the limits of an educated sense. Treat them with that mingled modesty and confidence which have ever been and ever must be the characteristics of disciplined genius. You have entered the temple of the arts with the most precious jewels in your hands. Ignorance and self-conceit are sacrilege here. Sordid motives are sacrilege here.

"It might have been well for the great men of former days to have played with their arts, confident in their principles, but modest in themselves. But glass staining is no easy and light matter. The mere material itself is so beautiful that the eyes of the vulgar are dazzled and deceived by it, but it needs the utmost tact in its management, and genius and labor, long and hard, for its success.

"Let, then, no wilful, no untrained hand meddle with it; let no vain spirit of self-taught genius intrude upon it; for such an one, who thus violates the sanctity of the art, will cut the throat of his hopes and reputation as surely as the glass will cut his fingers."

DESIGN IX.

The style of this church incorporates many of the leading characteristics of Italian Gothic, although much modified to suit the requirements of climate and modern usage, and borrowing from more northern lands the steep roof and tapering spire. It is on a somewhat larger scale than those previously given, containing nearly one thousand sittings. Its plan is a quadrangle, composed of nave and aisles, without transepts. There are three alleys, and six ranges of pews,—effecting an economy of space by having a pew on each side. There are three western entrances, two of which are formed by north and south porches, and the third by the base of the tower.

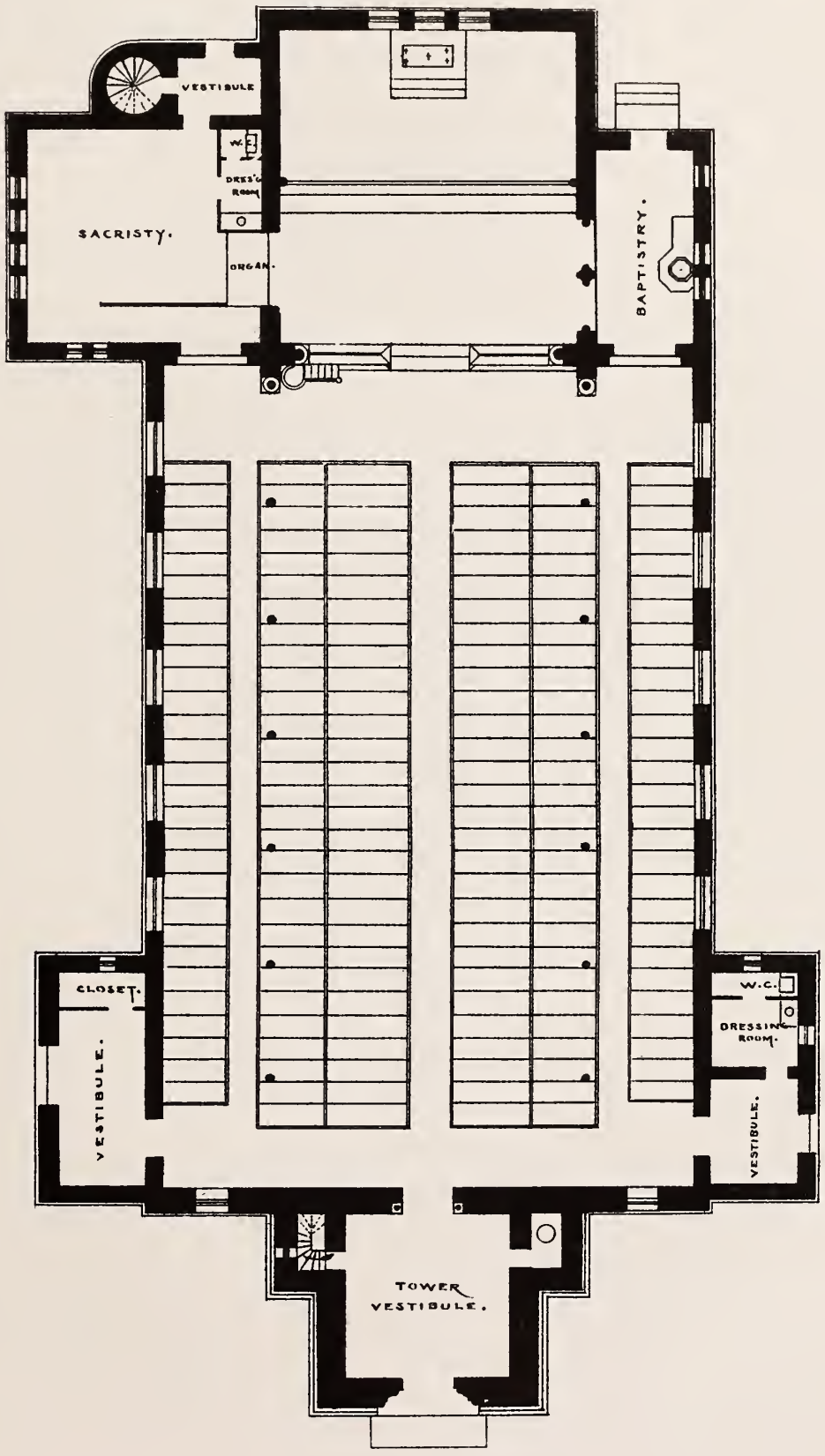
The chancel, divided into sanctuary and choir, is flanked by sacristy and chancel aisle,—the former containing the organ, while the latter acts as a baptistery and eastern entrance. The sacristy, it will be observed, is divided into two stories, the upper one, intended to serve for a study, is approached by a circular staircase at the right of the entrance.

The interior of this church (see plate 23) has an open timber roof, supported by an iron lattice girder beneath the ridge, thereby doing away with the necessity for buttresses, as described in our article on roofs. The rood-screen is omitted in this instance, and the stone coping, before alluded to, marks the division between nave and chancel. The cross, which would otherwise surmount the screen, is illuminated on the wall above the chancel arch, surrounded by a *vesica piscis*, with the *alpha* and *omega* on either side enclosed in a circle and triangle. The arch itself is illuminated with a legendary decoration.

The columns supporting the chancel arch, and those between choir and baptistery, are of polished Aberdeen granite, excepting the base, capital, and *annulus*, which are of white marble. The arches are constructed of light and dark stone, in alternate *voussoirs*. The reredos above

PLATE 21.

DESIGN 9.



GROUND PLAN.

0 10 20 30 40 50

the dado is of illuminated tile, surmounted by an enriched stone cornice, and the sedilia are a series of stone niches built within the wall.

The roof of the choir is of an open timber character, like that of the nave, and extends as far as a foliated cusping, pierced with quatre-foils, and received by columns reaching to the floor—thus marking distinctly the division between choir and sanctuary. The latter, carrying out the principle that all decoration should culminate at this crowning point, has, instead of an open timber roof, a panelled ceiling, richly illuminated.

The pulpit, the motive of which was taken from one of Moyr Smith's spirited designs, is executed in marble—the standard of perforated metal-work of an elaborate character. The font is of Caen stone, having a traceried pyramidal cover, surmounted by a floriated cross.

Our readers will agree that there is a certain propriety in constructing the floors of a style and in a material equal in dignity and richness to other parts of the building. Accordingly, we would propose that the entire flooring be of tile excepting that within the pews. The nave may be laid in plain, square tile, set diamond-wise; the choir, in those of varied colors; and the sanctuary have its floor of encaustic tiles, forming a brilliant and complete mosaic pattern. The chancel steps may be of marble, thus affording all the beauty of contrast.

There is an endless variety of combinations to be formed from these beautiful art works, the method of making which, completely lost during the renaissance period, was revived mainly through the efforts of Mr. Minton. Aided by the admirable designs of Pigin, which were conceived in a true Gothic spirit, and through a long series of experiments, he, at last, succeeded in producing them equal, if not superior to the old.

As some description of mediæval tiles may prove interesting, we condense the account given of them in the "Oxford Glossary."

There were three styles employed at different periods,—those in which the pattern was represented in *cavetto*—or by means of incised lines, filled in with white clay; those having a pattern in relief and the field in *cavetto*, and, lastly, tiles, ornamented with designs in superficial colors.

A profusion of good examples still exists of single tiles, and sets of four, nine, sixteen, or a greater number, forming by their combination a complete design; but examples of general arrangement on a large scale are very imperfect. It seems certain, however, that a large proportion of plain tiles, white, black, or red, were introduced in longitudinal or diagonal bands, to give relief and effect to the portions composing the design, and doing away with that resemblance to oilcloth, apt to result from the continuity of pattern, which, when spread unbrokenly over a large surface, has a confused rather than a rich effect. It may also deserve notice that in almost every instance when ornamental tiles have been accidentally discovered or dug up on the site of a castle or mansion, there has been reason to suppose that a consecrated fabric had there existed, such as the chapel or oratory of the edifice. We have also ancient authority for the use of tiles as an ornamental dado, decorating the lower part of the walls around the altar, and also to supply the place of a reredos, *retro-altare*, or *post-tabula*, or to answer the purpose for which hangings of tapestry were commonly used in those days. This was a usual method of employing them in the old Spanish cathedrals; the designs being in imitation of those on the old arras or needle-work hangings, and usually representing Scripture subjects.

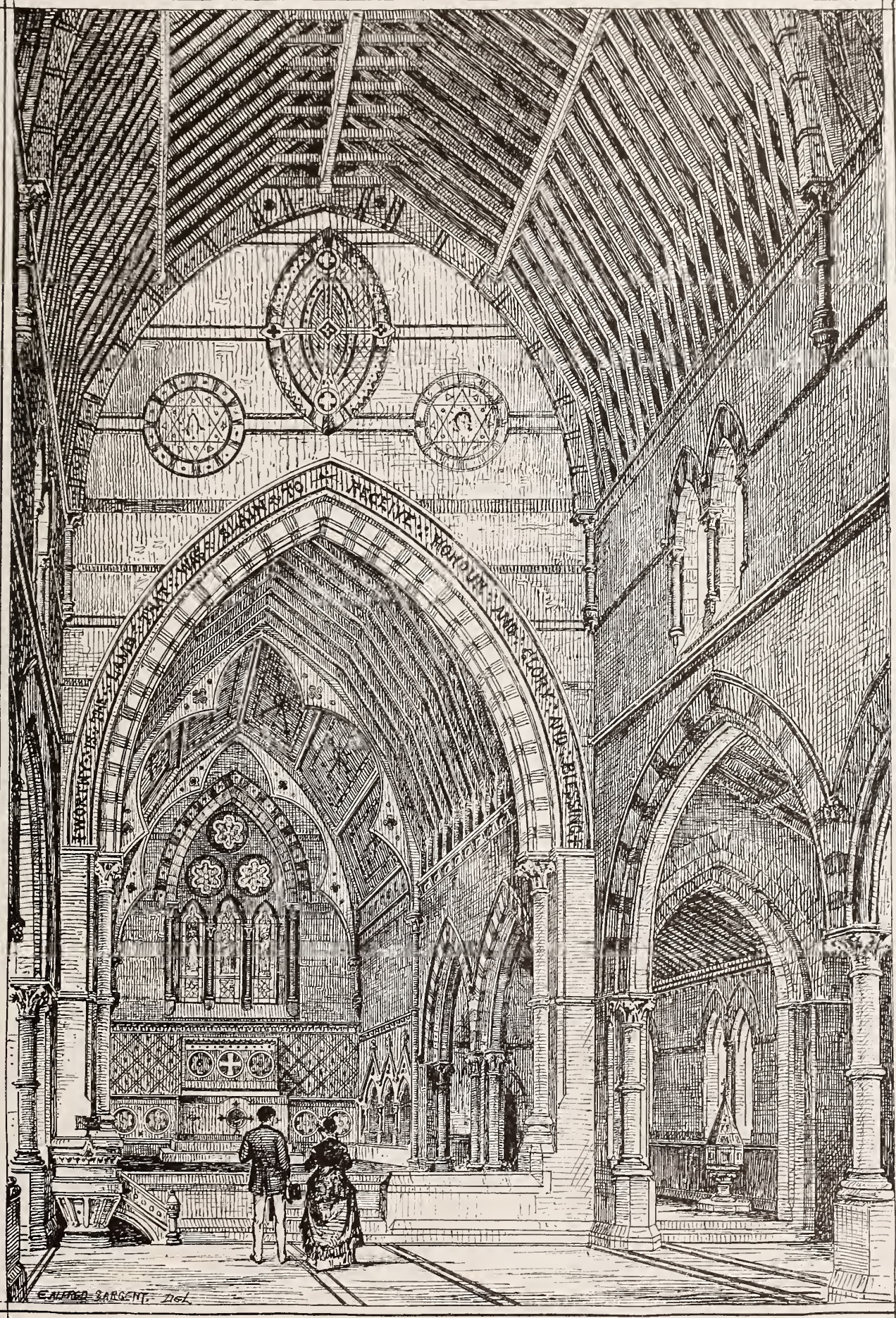
PLATE 22.

DESIGN 9.

C. A. SARGENT & T. H. McAVOY DEL

AM. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNES PROCESS.

PERSPECTIVE VIEW.



IM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

INTERIOR VIEW.

CHAPTER XI.

CHRISTIAN EMBLEMS.

The most speaking adornments of Holy Church are her emblems; for although her walls, with their symbolic detail, such as foliated panels, tripled mouldings, and pointed arches stand before us lasting "sermons in stone," the glowing colors and gold which decorate her sanctuary, unfold to the enlightened eye, like the illuminated missals of old, a chronicle of her sacred mysteries. Above us shines the azure ceiling, powdered with golden stars, which sets forth the canopy of heaven; while on walls and windows emblems of Christ and the Holy Trinity, of saints and evangelists, call the mind to the contemplation of things eternal.

Foremost among these sacred symbols is the Cross—the emblem of our Redemption—which surmounts the altar in metal richly wrought, and is embroidered upon every vestment and fabric pertaining to it. It caps the rood-screen, is carved on stall ends, is worked into monograms, and seems generally to fill an esthetic as well as emblematic purpose.

The forms of the Cross are various, but are all based on the primary types —the Greek and Latin. The former has all its members of the same length, so that it can be circumscribed by a circle (fig. 1), while the latter has unequal limbs, and represents the actual Cross on which our Saviour suffered. Hence it is called the Calvary Cross. (Fig. 2.) The five wounds received by the Saviour at His crucifixion, are frequently represented by five carbuncles inserted at the extremities and centre of the cross.

The Latin Cross was adopted by the Western Christians, while the Greek form prevailed throughout the East. From its greater idealization it is the one most generally used for decorative purposes.

The Tau Cross (fig. 3) has but three

members, and is supposed to represent the cross on which Moses elevated the brazen serpent in the wilderness. It derives its name from its resemblance to the Greek letter T. It is also called the Anticipatory Cross, and the Cross of St. Anthony.

There are two ecclesiastical crosses (fig. 4), that with triple beams being devoted to the Pope, and that with two, to cardinals and archbishops.

The Cross of St. Andrew (fig. 5) is supposed to bear the shape of that on which he suffered martyrdom.

The Maltese Cross (fig. 6) was borne by the Knights of Malta and St. John, and the Knights Templars.

The Cross Pattée (fig. 7) is similar to the Maltese Cross, and may have its limbs either curved or straight.

The Cross Boutonnée (fig. 8) has its arms trefoiled; and the Cross Fleurie and Cross Patonce (figs. 9 and 10)—the most beautiful of the Greek type—are used most frequently in decorative art.

The first five of these crosses, being severely plain, are supposed to set forth the sufferings of Christ and His Church under persecution, while the floriated types are intended to express the Church triumphant over its enemies, loved and cherished upon earth, growing and fruit-yielding like a goodly tree, and spreading its branches abroad unto all who would seek its shelter.

Next in importance, as they are undoubtedly among the oldest Christian symbols, come the mystic expressions and monograms of the Holy Trinity. One of the most beautiful is the equilateral triangle, having each of its sides equal in importance and forming a perfect figure. (Fig. 11.) This is probably the earliest emblem, and is conspicuous in the catacombs, graven on the tombstones of converts. Another familiar and beautiful emblem is the trefoil, or shamrock (fig. 12), which is said to have been adopted by St. Patrick when preaching to the pagan Irish. While attempting to convey to their minds some idea of the mysterious Godhead, he caught sight of the simple shamrock, and pointing out to them how there were three perfect leaves, yet together they formed but one perfect leaf, he succeeded in making the doctrine of the Trinity clear to them. Doubtless the good saint little thought

EMBLEMS.

that this form was thereafter, through all ages, to be carved on panels and wrought into unnumbered window heads.

Fig. 13 represents a most beautiful and intricate monogram of the Trinity. It is founded upon the equilateral triangle. The circular aureoles at the angles contain the initials of the Latin names of the Three Persons, and the centre aureole, the word *Deus*. The whole inscription reads thus: "*Pater non est Filius, Filius non est Spiritus Sanctus, Spiritus Sanctus non est Pater. Pater est Deus, Filius est Deus, Spiritus Sanctus est Deus.*" That is: "The Father is not the Son, the Son is not the Holy Ghost, the Holy Ghost is not the Father. The Father is God, the Son is God, the Holy Ghost is God."

From the earliest ages monograms of the Saviour's name have been favorite emblems, and, with the exception of the cross, have been more frequently employed than any other. The cross is, in fact, figured with more or less distinctness in all of them. The simplest of these (fig. 14), found in the catacombs at Rome, is formed of the first and second letters of the Greek name of Christ. Fig. 15 is the same with the addition of the Latin letter N, signifying "*noster*"; so that the monogram, when extended, reads, "Our Lord Jesus Christ."

The name of our Lord is frequently expressed in Greek by the first and last letters of His name together, with the sign of contraction placed over them. $\bar{I}\bar{\Sigma}$ (fig. 16) stood for Jesus—the *I* (*iota*) and Σ (*sigma*) being the first and last letters of *IHΣOYΣ*; and, again, $\bar{X}\bar{\Sigma}$ (fig. 17) stood for Christ; X (*chi*) and the Σ (*sigma*) being the first and last letters of *XPIΣTOΣ*.

The monograms most frequently seen (figs. 18, 19), were adopted by Western artists from the original Greek; altering the two first and the last letters into those of their own country and time, forming at the same time their beloved cross, by causing the sign of contraction to intersect the η (*eta*).

The most favorite emblem of the Holy Spirit is the dove with extended wings.

The emblems of the Passion of our Lord set forth His Agony, His Betrayal, His Sufferings at the hands of the soldiers, and His Death upon the cross.

The emblem of the Agony is a chalice

having the Calvary Cross issuing from it, or painted on its side.

There are eight emblems of the Betrayal, namely—the sword, club, lantern, torch, ear, rope, thirty pieces of silver, and head of Judas, for all of which authority may be found in the Gospels.

The emblems of the Sufferings are seven —the basin and ewer used by Pilate, the rope, the pillar to which Jesus was bound, the scourge, purple robe, crown of thorns, and reed.

The emblems of the Crucifixion are the three nails, the hammer, pincers, ladder, sponge, reed, spear, inscription, seamless garment, and three dice.

The phœnix is sometimes used as an emblem of the Resurrection, and the eagle with its wings, flying upward, sets forth the Ascension.

Baptism is sometimes figured under the symbol of a fish—water being the only element in which a fish can live. Three fishes entwined together in the form of a triangle signify that the sacrament of baptism is administered in the holy name of the Trinity.

The Holy Evangelists have for their symbols the winged ox, winged man, winged lion, and eagle, corresponding with the mystical four beasts mentioned in the Revelation of St. John. St. Jerome gives us the following reasons for the distribution of these forms to the several Evangelists.

St. Matthew was given the Man because he commences his Gospel with the human generation of Christ, and dwells more upon the human than the Divine nature of our Lord.

St. Mark is symbolized by a Lion, because his Gospel sets forth the royal dignity of our Lord and His power, as manifested in the resurrection; upon which St. Mark specially dwells.

The Ox was given to St. Luke, because he particularizes the atonement and priesthood of our Lord, and the ox is the beast of sacrifice.

The Eagle belongs to St. John, because as an eagle he soars in the spirit toward the Heaven of heavens to contemplate the Divine nature of Christ, and bring back to earth the Revelation of those sublime and awful mysteries.

The emblems of the remaining apostles are as follows:

St. Peter has two keys, supposed to

be the key of heaven and that of hell. This emblem is derived from the words of our Lord to that apostle. (St. Matthew, xvi. 29.)

The emblem of St. Paul is a sword, the instrument of his martyrdom. He was beheaded near Rome.

The well-known Cross of St. Andrew is the emblem universally given to that apostle. Tradition represents him as having elected to suffer death on a cross of that form.

St. James the Great has a pilgrim's staff, scrip, and scallop shell, because he was the first of the apostles to go forth to foreign lands on the sacred mission of conversion.

The emblem of St. Thomas is a builder's rule—signifying his profession of architect. The emblem appears to have originated in the following legend:

"When St. Thomas was at Cesarea, our Lord appeared to him and said: 'Gondoforus, king of the Indies, has sent for thee—being a man well skilled in architecture—to build a palace finer than that of the Emperor of Rome. Behold, now, I will have thee go unto him.' And Thomas went, and the king commanded him to build a palace, giving him much gold and silver therefor. Now the king journeyed into a far country, and was absent for two years; but St. Thomas, instead of building a palace, distributed all the treasure among the sick and needy.

"When the king returned he was full of wrath; he cast St. Thomas into prison, and meditated how he should put him to death. Meantime the king's brother died, but on the fourth day the corpse suddenly sat upright and said unto the king: 'The man whom thou wouldst kill, is a servant of God; behold, I have been in Paradise, and the angels showed me a wonderful palace of gold and silver and precious stones, and they said, "This is the palace that the architect Thomas hath built for thy brother Gondoforus."

"When the king heard these words he ran to the prison and released the apostle; and Thomas said unto him, 'Know, O king, that those who would possess heavenly things have little care for the things of earth. There are in heaven glorious palaces without number, which are prepared from the beginning

of the world for those who purchase the possession by faith and charity. Thy riches, O king, may prepare the way for thee to such a palace, but they cannot follow thee thither.'"

St. James the Less has a club, or bat,—the instrument of his martyrdom.

St. Philip has a cross of the Latin type fastened to the end of a long staff or reed. He is said to have been crucified with his head downward.

The emblem of St. Bartholomew is the reputed instrument of his martyrdom—a large knife of peculiar shape, with which he was flayed alive by a king of Armenia.

St. Simon has for his emblem a large saw—his martyrdom was supposed to have consisted in being sawn asunder.

St. Matthias is thought to have met with his death at the hands of the Jews, and has for his emblem an axe.

The emblems of the lesser saints and martyrs, accepted by the English Church, would fill too much space; we will, therefore, close by enumerating the symbolic colors and stones used in the Church:

White, the emblem of purity, innocence, virginity faith, joy, life, and light, is used by the Church during the octave of Easter, and on the feasts of Christmas, the Circumcision, and Epiphany, on the feasts of the blessed Virgin, and on the feasts of the saints who were not martyrs. White may properly be represented by silver.

Red, signifying Divine love, power, royal dignity, and also blood, and suffering, is used at Pentecost, Holy Innocents' Day, and on the feasts of the martyrs.

Blue signifies piety, sincerity, godliness, and Divine contemplation. It is not used by the Church in draperies, but more generally appears in the decoration of ceilings; where, powdered with stars, it represents heaven.

Pure yellow or gold signifies brightness, the goodness of God, and faith. Dingy yellow, on the contrary, signifies faithlessness and deceit. In art, Judas wears a dirty yellow robe, in allusion to the betrayal.

Green signifies bountifulness, hope, immortality, exalted faith, and victory over trial and sin. It is used by the Church on ordinary Sundays and week-days.

Violet signifies passion, suffering, sorrow, humility, deep love, and truth. It

is used on Septuagesima, Quinquagesima, Ash-Wednesday, and during Lent, Holy Week, and Advent.

Black, symbolical of death, darkness, despair, mourning, and sorrow, is used by the Church on Good-Friday only.

The precious stones adopted by the Church are nine in number, and comprise the diamond, ruby, carbuncle, sardius, sapphire, topaz, emerald, amethyst, and pearl. They have the same signification as the canonical colors they present.

Fair stand thy walls, O Zion!
Thou city of our King;
Thy courts, set round with jewels,
With heavenly music ring.

Topaz and Diamond shineth
Thy glorious stones among,
The Ruby and the Emerald,
The Pearl and Sapphire stone.

The Topaz, of God's goodness,
And faith, and truth doth tell;
The Diamond symbols purity,
Joy, life, and light as well.

The Ruby, royal dignity
And suffering doth mean;
The Emerald, immortality,
And triumph over sin.

The Pearl denotes virginity;
The Sapphire, godliness;
The Carbuncle, our Saviour's wounds,
And grief, the Amethyst.

Lastly, the crimson Sardius
Speaks of God's love divine;
These are the jewels glorious
In Zion's walls that shine.

Oh, royal City Beautiful!
Home of the pure and blest!
Fain would we seek within thy gates
Peace, and eternal rest.

DESIGN XII.

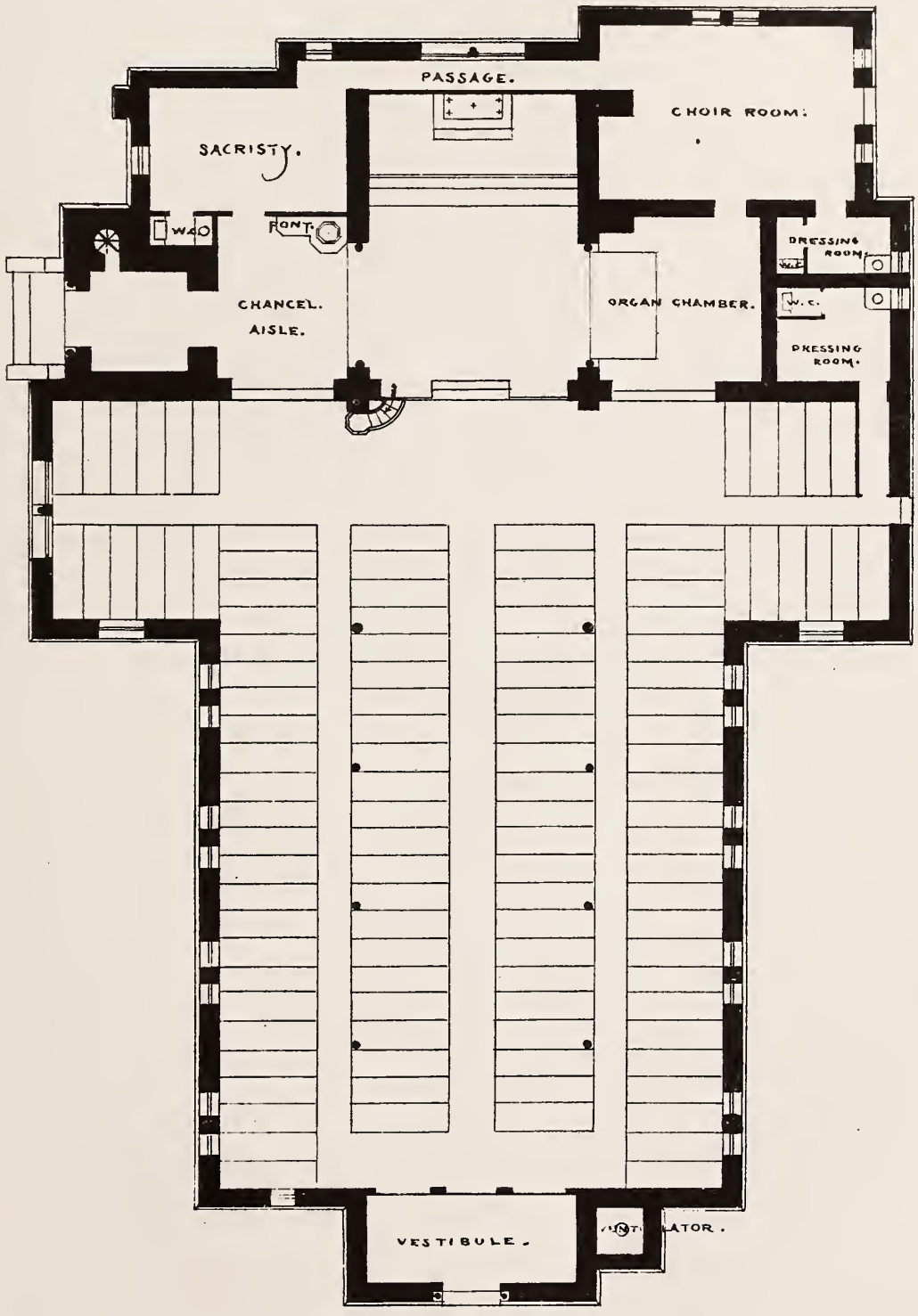
The following design contains some seven hundred sittings, and is intended to be picturesque in outline and liberal in internal arrangements, having a spacious vestibule at the western entrance, three alleys, and four ranks of pews. The chancel is arranged for a surpliced choir, and is surrounded by a number of rooms appointed to the use of choir and clergy. First in order is the organ chamber, which is, perhaps, larger than is strictly necessary for containing the instrument. This, however, we think a good fault, as organ chambers which are too cramped not only muffle the sound, but, as we have before mentioned, prevent the organ's being enlarged at a future time. In the present instance it gives room for a passage behind the organ to the choir-room. The latter communicates with the sacristy by a passage behind the altar, made by placing the reredos a little out from the eastern wall.

Opposite the organ we have arranged a chancel aisle. This occupies the space between tower and chancel, and acts as an eastern entrance to the church and baptistery. One great advantage we claim for this feature is in facilitating the retirement of communicants. Much confusion is often occasioned by those wishing to approach the altar encountering those who are leaving. At crowded celebrations this is frequently the cause of serious inconvenience and delay. By the present arrangement communicants are enabled to approach the altar by the chancel steps, and, passing to the right, leave by the chancel aisle, thus avoiding the awkwardness of opposing crowds.

The most conspicuous feature of the exterior is the tower. Occupying as it does a prominent position in the view, it becomes a central feature of the composition to which the remainder of the design acts in graceful subordination. Its plain walls are subdued in character, giving repose of parts, and, we think, avoiding that strained appearance which is the

PLATE 25.

DESIGN 12.



GROUND PLAN.

40 30 20 10 0

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

painful result of attempting too great variety of effect.

In this design, as in most of the others, we have entirely avoided buttresses, except those flying buttresses which support the groined stone ceiling of chancel, as described in Chapter I. We have already enlarged on the subject of buttresses in Chapter I., but we would here speak more particularly on the impropriety of tower buttresses, the necessity for which is in no case apparent, their introduction being due simply to the idea of relieving the angles.

The spire, unlike a vaulted ceiling, offers no lateral thrust, as the steepness of its inclination, together with the broken joints of its masonry, preclude entirely any danger of spreading.

Again, the buttress suggests the necessity of support, but this is opposed to the very nature of the tower, which is in itself a "strong bulwark of defence." The same idea has been happily expressed by Mr. Ruskin. He says: "But in all of them" (that is in towers), "this I believe to be a point of chief necessity that they shall seem to stand, and shall verily stand, in their own strength; not by help of buttresses, nor artful balancings on this side and on that. Your noble tower must need no help, must be sustained by no crutches, must give place to no suspicions of decrepitude. Its office may be to withstand war, look forth for tidings, or point to heaven, but it must have in its own walls the strength to do this, it is to be itself a bulwark, not to be sustained by other bulwarks, to rise and look forth—'the tower of Lebanon that looketh toward Damascus'—like a stern sentinel—not like a child held up in its nurse's arms. A tower may, indeed, have a kind of buttress, a projection, a subordinate tower at its angles, but these are to its massive body like the satellites to a shaft, joined with its strength, and associated with its uprightness, part of the tower itself; but exactly in the proportion in which they lose their massive unity with its body, and assume the form of true buttress walls set on at its angles, the tower loses its dignity."

PLATE 26.

DESIGN 12.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

PERSPECTIVE VIEW.

CHAPTER XII.

A PLEA FOR THE CHURCH CATHOLIC.

THERE is unfortunately a mistaken impression on the minds of many worthy Christian people, that the present revival of ancient rites and ornaments of the Church is a leaning toward Rome. We hope to do our small part toward appeasing the suspicions of these tender consciences, by proving that it is the Church of England, and not the Church of Rome, that has revived Christian art and primitive worship. And as the Church of England claims to hold the true faith, from which Rome has fallen away, so she claims the right to revive her primitive services and ornaments, which were all in use, it should be remembered, in post-reformation days.

It is true that Rome arrogates to herself the credit of having converted England, but let us see how far ancient chronicles corroborate this assertion. St. Augustine and his Roman *co-laboreurs* figured prominently at the court of the Christian king Ethelbert, but never followed the example of Christ and the disciples in preaching the Gospel to the poor, and making converts of the common people. As a natural consequence, when the pagan Edbald succeeded Ethelbert, Christianity went out of fashion, and the Roman bishops who held the sees of Canterbury, London, and Rochester, immediately fled the country, to escape the rigors of pagan persecution. Only one, St. Lawrence, archbishop of York, remained, and by his eloquent preaching converted Edbald himself.

But meanwhile it was the native missionaries from Ireland and Scotland who with pious zeal went among the poor, bearing the Cross of Christ, and converted the people by thousands. Untrained and uneducated, compared with the Roman missionaries, they reached the

hearts of their hearers, and achieved a permanent victory for the Church.

Then, when by their untiring ministry they had prepared the field, and by boldly facing, conquered the dangers, back came the Roman prelates to assume the care over sees which had now become posts of value and importance. The Scottish missionaries, true to their character, and, like the apostles of old, seeking not the glory of this world, modestly retired before their haughty rivals, but their fame has not been forgotten as the men who were in reality the means of converting the English people. It is true that England for many years owned allegiance to the Church of Rome, though she eventually joined in the reform movement, which was the spontaneous protest of human nature against the corruption and overweening arrogance of Rome, and gladly returned to the worship of the primitive Church.

This primitive worship, it must be remembered, is not to be confounded with the novel and heretical views of the Lutheran or Calvinistic bodies, neither does it owe anything to Rome. We take a deep interest at the present day in analyzing and tracing to its elementary stages a scientific discovery, but how far greater should be the interest we feel in following back to its first sources the Liturgy of our beloved Church. We cannot, unless we do this, successfully refute prejudices and false conceptions of the authority on which we act in reviving rites and ornaments which unhappily have been long buried in unmerited obscurity. It is true that such prejudiced men as Hooper and Baxter maintained, each in his day, that art and beauty should be banished from the Church, and her rites robbed of their impressive features and doctrinal weight, but they never succeeded in making their innovations legal.

As far back as the year 1085, the English cathedrals had each a service book of its own, called a Use, as the Use of Hereford; the Use of Exeter. The most famous of these was the Use of Sarum (the ancient Salisbury), drawn up and arranged by Osmund, bishop of that see, and Chancellor of England. This gradually became a model for all other English churches, and the manual of the good bishop has at the present day been again referred to as authority in

reviving the primitive observances of the Church.

King Edward VI., of glorious memory, in 1549, the second year of his reign, caused the first Book of Common Prayer in the English tongue to be compiled, and it cannot but lend the present book a deeper interest to know that it differs but slightly from the first ever printed. The forms of the Sarum Use were closely followed, making the new book purely Anglican, and not Romish, as claimed by the Puritans then and in later years. In the preface it is stated that "the objects its compilers had in view were, that all the realm should have but one Use, that nothing should be contained therein but the very pure Word of God, the Holy Scriptures, or that which was evidently founded upon the same, and that all should be in English."

The services in the first book vary from the present chiefly in arrangement; the principal rubrical differences being in the Communion Office. These are, a prayer for the sanctification of the Elements by the Holy Spirit, and the first clause only being used of the sentences now said on distributing the Body and Blood; also a rubric directing the mixing of water with the wine. The Exhortation, Confession, and Comfortable Words were added at this time.

However, owing to the influence of Hooper and other reformed divines, who shared rather the destructive and levelling ideas of Calvin and Knox than those nobler feelings which lead us to respect and honor the ordinances of Holy Mother Church, this first Prayer Book was no sooner published, than an outcry was raised for its alteration. A committee was appointed to deliberate upon the subject, which took pains to let it be known that though they were desirous of making any changes "which might render the book more earnest, and fit for the stirring up of all Christian people to the honoring of Almighty God," yet they in nowise intended condemning the doctrines of the first book. And King Edward declared by his Second Act of Uniformity, that it had contained nothing but what was agreeable to the Word of God, and the primitive Church; and such doubts as had been raised in the use thereof proceeded rather from bigotry and prejudice than from any worthy cause.

This revision was deliberated upon long and earnestly, and it was not until 1552, that the second Prayer Book was published and used in churches. The chief alterations made were in the daily prayer —the Introductory sentences, Exhortation, General Confession, and Absolution being placed at the beginning of the service. The Decalogue and Responses were added to the Communion office, the sign of the cross and mixture of water with the wine omitted, and the long prayer of consecration divided into the prayer for the Church Militant, the prayer of Consecration, and the first prayer after Communion.

The rubric concerning vestments and ornaments now ordered that neither alb, chasuble, tunicle, stole, or cope should be used, and the priest should wear only a surplice; while the altar lights were forbidden entirely. The latter alterations were inserted to please the Puritan faction; and herein we cannot but feel that Edward, though a pious and worthy prince, was too apt to be unduly influenced and "blown about by every wind of doctrine."

When Elizabeth came to the throne, she, although a Protestant monarch, had no sympathy with Puritan intolerance, and by her Act of Uniformity (A.D. 1559), restored all the vestments and ornaments of Edward's second year (1549, previous to the revision of the Prayer Book).* The use of plain song, or intoning, was restored at the same time.

The last revision of the Prayer Book took place soon after the restoration of Charles II. This monarch on his arrival in England was importuned by the Puritans, first, not to restore the Prayer Book at all (it having been proscribed by Cromwell), and then, to make large alterations. He acceded to the last demand only so far as to consent that a council of bishops and an equal number of their opponents should meet to confer on the propriety of changes being made. This council,—called the Savoy Conference,—

* "And here it is to be noted that such ornaments of the Church and of the Ministers thereof, at all times of their Ministration, shall be retained and be in use, as were in this Church of England, by the authority of Parliament, in the second year of King Edward the Sixth. And the chancels shall remain as in times past."

This quotation from the Act of Uniformity is printed in the English Prayer Book, before the order for Daily Morning Prayer.

lasted some four months, during which time all the matters in dispute were fully discussed, but rather than yielding in any essential point, the bishops maintained the action of Elizabeth almost to the letter. The whole work was speedily completed, and in 1661 the Book of Common Prayer was adopted by both Houses of Convocation. An Act of Uniformity passed the House of Lords April 9th, and received the royal assent May 19, 1662.

We cannot but respect the first reformers, and agree that they purified the Church of great abuses, but we hardly think the boast of their Puritan descendants, that they have returned to the pristine form of worship, can be maintained. We think more credit, perhaps, should be given to the Church; which, while scrupulously avoiding all superstitious customs or ceremonies, seeks only to restore the grand and solemn services which our forefathers enjoyed, and a due regard and reverence for the great religious truths which they venerated.

Unfortunately for us, although the authority of the ancient rubrics and the Act of Uniformity were confirmed in the time of Charles II., the leaven of Puritanism had worked, perhaps, to an extent unsuspected by the very men who were influenced by it; while, at the same time, the social condition of the great body of clergy was incredibly low, and little suited to win back the regard of masses more deeply impregnated with the Puritan bigotry. And the upper classes were dissolute to a degree which we can scarcely conceive of as possible in connection with education and refinement. Although such great men as Barrow, Tillotson, Beveridge, and Stillingfleet, were by their eloquence delighting the court, and forcing even the Duke of Buckingham to admire and respect them, the mass of the clergy were in a condition little better than the veriest boors. The country parson usually was compelled to drive the plough, and feed the pigs, on his glebe, in order to make both ends meet; his stipend was about £20 a year; his library consisted of half a dozen dog's-eared volumes, thrust on a shelf among the pots and pans; his very church was a dilapidated little edifice, shorn of its ancient glories of stained glass and carved woodwork, besmeared with whitewash, and

the greater part of the chancel used as a convenient store-house for coals and litter. The ancient font had in all probability been stuck there in Puritan times among the other rubbish, and there it remained; the organ was gone, and a "singing loft" alone supplied its place. The parson had neither time nor means, even if he had the inclination, to make these things better, while his dissipated superiors were too full of the concerns of this world to care a button whether it were possible to carry out the services according to the rubrics in such a building or no. "Church and King, and down with the Rump!" was an admirable party cry, but as to how much real feeling for the Church, except as it was opposed to Puritanism, lay behind it, we think is a question; and how was it possible for a clergyman to possess influence, whose wife, as Macaulay tells us, was usually a servant girl, and his children brought up to servitude, and who, when he filled the office of chaplain to some drunken country squire, was always expected to work in the kitchen-garden, carry messages and parcels like any footman, and leave the dinner-table before the dessert came on?

It is doubtless to this state of things, and later on, the Presbyterian atmosphere of the court of William of Orange, and the utter heartlessness and want of anything like a religious spirit in the Georgian era, that we owe the gradual abandonment of those ceremonies and ornaments properly belonging to the Church. To use the words of a popular writer, speaking of the latter period: "The age was singularly void not only of religion but of all spirituality of mind or reference to things unseen. * * * They had some pagan virtues, amid the perpetual flutter of talk and dissipation; one was a good father, another a good son, a third a most loyal and tender wife, yet it is as clear as daylight that the thought of God was not in them. They were godless, earthly, worldly; without consciousness of anything more in heaven or earth than was dreamed of in their philosophy. It was one of the moments in which the world had fallen out of the knowledge of God. Other ages may have been as wicked, but we doubt whether any age had learned so entirely to forget its connection with higher things, or the fact that a soul which

did not die was within its clay. The good men were inoperative, the bad men dauntless; the vast crowd between the two, which forms the bulk of humanity, felt no stimulus toward religion, and drowsed in comfortable content. The clergyman would lend a helping hand to carry my lord to bed after he had dropped under the table, and turn a deaf ear to the blasphemies with which his speech was adorned."

Indeed, the reverend gentleman himself might not unfrequently be seen in liquor, betting on the race-course, or witnessing a cock-fight; and a rector who could hastily don his surplice over scarlet coat, and top-boots, and hurry pell-mell through a service, which he regarded as an unnecessary bore, keeping him most unconscionably from the hunting-field, was not the man to stick at mangling the service on any occasion. Bishop Burnet made the remark in 1713: "I have observed the clergy of all denominations in the places through which I have travelled—Papists, Lutherans, Calvinists, and other dissenters—and our clergy are, above all, much the most remiss in their labors, and the least severe in their lives." "A due regard to religious persons, places, and things, has scarce in any age been more wanting," says Dr. Atterbury, another famous divine.

It is no wonder, with such apathy as bound the Church hand and foot during this debased period, that sectarianism should have flourished apace, and gained a wide-spread influence over the popular mind. Of the Church, indeed, it may truly be said that she was actually in a lower condition than before the Reformation. People neglected her now formal, lifeless services, and flocked in crowds to follow the Wesleys, in whose fervid preaching and animated hymns they found the living interest their souls desired. While Whitfield was preaching to the poor grimy colliers, and Wesley vainly trying to get a hearing from the pulpit, prelates and clergy looked coldly on, and closed the church doors against the too fervid preachers. If this had not been the case, if the Church had listened to him, Wesley would have become her reformer, instead of the founder of a sect, for we read that he was in his youth a strict High Churchman.

While studying at Oxford, he became spiritual director of a body of young men whom Charles Wesley had formed into a brotherhood to practise those works of charity and faith neglected by the careless, heartless Churchmen of the day. Many a poor, starving creature, and inmate of a gaol looked forward as their sole comfort to the visits of the brotherhood, the only persons who showed compassion for them, or told them of the infinite mercy of God for all who repent.

If only the same earnest spirit had existed generally among the bishops and clergy of that day, we should now see a very different state of affairs from the Church enfeebled, and her influence comparatively weak, while sectarianism and rationalism are rampant. The only way to prevent the spread of dissent is to offer something more attractive and stimulating. The real reason, we think, of the Church losing her adherents is to be found in the utterly cold, humdrum, unsympathetic character of her services, and the want of more active proselytizing among the poor. The sects send emissaries among the neglected lower classes, gather the children into ragged schools, induce the elders to join in their meetings, where enthusiastic preaching and joyful hymns warm and excite the hearts of those to whom the services of the Church, as too generally conducted, appear but cold, lifeless abstractions. We saw the statement made not long ago, in a Church paper, that there were between four and five hundred clergy in this country at present without parishes, or any work in the Church. Now let some of these unemployed divines form themselves into communities, go into this wide field where "the harvest truly is great, but the laborers few," get up free-seated places of worship, and they will soon have work in plenty. Look at the success of the mission churches in London, unendowed, situated in the poorest parts of the city, yet well supported by the poor, who gladly throng to their altars, till not even standing-room can be found soon after the commencement of any one of their numerous services. There is no lack of real, much-needed work to be done—no necessity for a young divine to wait for a fashionable parish before he begins to be about his Father's business.

Not so did the clergy hesitate about engaging in the good work during the early days of the Colonial Church. It is a remarkable fact, that surrounded as they were by difficulties, without a bishop, closely watched and annoyed by implacable Puritan enemies, the pioneers of the American Church should have shown the earnest and truly catholic spirit they undoubtedly displayed. Daily services, strict observance of fasts and festivals, and anxiety to obtain correct embellishments and Communion plate from the mother country, all attest their practical, working piety. We also find a marked appreciation for the appropriate naming of their churches—a point too often ignored at the present day. Thus, the church at Burlington, N. J., was called St. Mary's, from the circumstance of its having been commenced on Lady-Day—a day sacred to the memory of the annunciation of Our Blessed Saviour to the Virgin Mary; and another is named St. Paul's, because it was dedicated on the vigil of the festival of St. Paul's conversion. The early preachers spoke of the Church of England as "the ancient mother" of the people, and exhorted all who had wandered away to return to her bosom. All this may not seem a great work, yet, considering the drawbacks under which our forefathers labored, it is astonishing not that they did so little, but that we, with all our advantages and blessings, should not do a hundredfold more.

Now, in support of our first argument, that it is the Church of England, and not the Church of Rome, which has revived Christian art, a quotation from an English writer will be appropriate:

"The Romanist boasts that it was the Papacy which revived the arts;—why could it not sustain them when it was left to its own strength? How came it to yield to the classicalism which was based on infidelity, and to oppose no barrier to innovations which have reduced the once faithfully-conceived imagery of its worship to the level of mere stage decoration? Shall we not rather find that Romanism, instead of being a promoter of the arts, has never shown itself capable of a single great conception since the Reformation? So long as—corrupt though it might be—no clear witness had been borne against it, so that

it still numbered in its ranks a vast number of faithful Christians, so long its arts were noble. But the witness was borne, the error made apparent, and Rome, refusing to hear the testimony or forsake the falsehood, has been struck from that instant with an intellectual palsy, which has incapacitated her from any further use of the arts which once were her ministers."

Surely no one can have entered a modern Roman Catholic church, without being struck by the tawdry, theatrical character of the altar, and its surroundings—so different from the grave magnificence and dignified splendor of a chancel, arranged in accordance with the true spirit of Christian art. All is meretricious show, where painted wood and plaster mimic costly marbles and bronzes, while of the surroundings of the altar, calico and spangles, wax dolls, artificial flowers, lace, ribbons, sham jewels, and flimsy finery form the component parts. Chancel they have none, the altar stands out into the nave; proper furniture they have none; the floor inside the altar-rail is covered by a gay, flowered carpet, such as you may see on any hotel parlor, and a few velvet-covered parlor chairs complete the arrangements of the sanctuary. Not the least resemblance does this picture bear, surely, to a properly appointed Anglican chancel.

The ornaments—which we find were sanctioned by the rubrics of Edward VI.'s second year, and the statute of Elizabeth—are the antependium, or frontal of the altar, and the superfrontal, made of silk, cloth, or velvet, in the canonical colors, and adorned with fringe, or lace and embroidery. The altar-lights—signifying that Christ is the light of the world—the altar-cross, the "fair white linen cloth"—covering the top of the altar only, not the *front*, but hanging over at the ends nearly to the foot-pace—one service book on a brass stand, and an "altar-card" (containing the Prayer of Consecration), were the ordinary appointments. Flowers in their season have been sanctioned by the late judgment in the Purchas case, before the Court of Arches, but in the case of Martin *vs.* Mackonochie, Sir R. Phillimore pronounced against the altar-lights, and, therefore, we would not advise their use in this country.

A great misunderstanding seems to pre-

vail with regard to the "fair linen cloth." It has generally been the custom to smother the altar in a huge cloud of damask, after the manner of a dining-table, while the consecrated vessels in the centre, and the alms-basin, placed leaning against the reredos, give much the effect of a sideboard set out with the family plate. The ancient custom we deem preferable, of having a small shelf or stand, called a credence, placed on the north side of the chancel, on which to arrange the chalice, paten, flagon, perforated spoon, etc., so that the priest may at the proper moment, according to the rubric, "reverently place on the altar as much bread and wine as he shall think sufficient"—a rubric which it is impossible to obey so long as the present slovenly and incorrect arrangement is suffered to exist.

Although we can see no objection to a cross surmounting the altar, yet we cannot approve of a crucifix. The cross is the ideal emblem of our Lord's Passion,—to carve a figure of Him seems too great a materialization of a sacred mystery. Any attempt of this kind must needs fall short of presenting the reality to our eyes, and all that is achieved is a painful and too literal delineation of an agonized frame, calculated to inspire rather distress and aversion in the beholder than any pious elevation of feeling. Besides, although we believe that our Blessed Lord still intercedes for us with His Father, yet we know that when His life was yielded up upon the cross, "He made there by His one oblation of Himself once offered, a full, perfect, and sufficient sacrifice, oblation, and satisfaction, for the sins of the whole world, and now reigns in glory everlasting,"—so that to "crucify Him afresh," even in carven stone, seems like a contradiction of Scripture truth. Even the cross when used should be of the floriated, or decorated type—the cross triumphant, not the cross of suffering—both of which are described in Chapter XI. It should never be forgotten that in Gothic every emblem and ornament has a symbolic meaning and an appropriate place.

We cannot but be reminded by the presence of images, however sacred, of the way in which these were abused, and made a means of the grossest imposition by the priests of Rome during

the middle ages. So long ago as 1538, one of these was detected by an Englishman named Nicholas Partrige, of the town of Boxley. The rood, or crucifix, over the chancel-screen in Boxley Church had long been famous throughout England as a most miraculous image, and thousands came from every part to behold it. If the gift offered by one of its worshippers happened to be a small piece of silver, the image would hang a pouting lip and shake its head, but if the gift were gold, then the image goggled its eyes, nodded its head, and grinned at the giver. But lo and behold! one fine day worthy Master Nicholas Partrige made the astounding discovery that inside the rood a hundred wires were concealed, by pulling which, all the miraculous movements were effected. The wretched imposture was torn down by the populace, and afterward taken to London and exhibited at Paul's Cross. Astonishment, rage, and mortification at having been deceived filled the minds of the good people of London; a great outcry was raised, and the image was pulled to pieces and destroyed. Happily for our country, the spread of public education renders it impossible that a cheat of this kind could be practised here; but in Italy, where the people are purposely kept in ignorance by the Church of Rome, winking pictures, nodding statues, bones of saints endowed with miraculous healing powers, and other equally ridiculous treasures are exhibited, and believed in with a credulity perfectly marvellous.

An undue and undeserved reproach has in our own day been attached to the name Catholic. The title of the Church Catholic, that in which we profess in our Creed to believe, is not, nor ever can be, properly given to the Church of Rome alone. To quote the words of a distinguished ecclesiastic, "it is an epithet which is applied to the Universal Church in its three unhappy divisions of Greek, Latin, and Anglican. You could not say baldly of any of these that it is the Catholic Church, but together they make up the Catholic Church. And, again, each is catholic in proportion to the fidelity with which it adheres to what in days of visible unity was ordained by the whole Church."

We may congratulate ourselves on liv-

ing in a day when the catholicity of the Anglican Church is beginning to be recognized as the vital principle of her being, and at the same time the long degradation of ecclesiastical art is passing away, and the world has found out, in a measure, that a whitewashed wall is not synonymous with a pure worship of God.

And to look on the other side also, what is this Protestantism of which we are so proud? Are we to judge it by its fruits? and, if so, have not some of these been discord, endless division, and cold carelessness in worship? We are not advocating any new views in using these words, for even so long as thirty years ago the Bishop of the Diocese of New York, in one of his pastorals, after some allusion to the state of the Roman Church, spoke as follows:

"And what shall we say of the counter-cause — Protestantism? Riven to its centre with internal dissensions; covering with its name every variety of schism, and every bold and wicked innovation of heresy, forming an unholy alliance with the veriest infidelity, while beguiling unstable souls by adopting the watchwords of Protestant liberty, the glorious privileges of private judgment and anathema on the corruptions of Popery, it is wasting its energies on internal strife, arranging its votaries in deadly feud against each other, and thus strengthening the hand and ministering to the triumphs of the Papal power it would cripple and subdue. Brethren, is not this a lamentably true picture of the Protestant cause?

"For we must remember Protestant is but a negative term. It implies no principle but that of dissent. Let who will, or let what sect will protest against Popish corruptions, he, or it, thereby becomes Protestant, no matter on what principles or in favor of what principles the protest is made. This is daily acted out. The rejection of Christ's priesthood, the rejection of His sacraments, every species of schismatic organization, every kind of erroneous and strange doctrine contrary to God's word, every grade of heresy, is called by the name of Protestant, *is* Protestant, and vaunts itself as the legitimate result of the great privilege of private judgment and the bounden duty of casting off the degrading and sinful yoke of Papal despotism.

"Brethren! unwelcome as such truths may be, hostile as they may be to favorite theories and mortifying to honestly cherished sensibilities, still they are truths. It were vain, worse than vain, to blind our eyes to them. The true course is to look them full in the face, and endeavor by God's help to draw from them what may tend to His glory, the good of His Church, and man's spiritual and eternal welfare. Mere Protestantism is no efficient bond of union. It may be as far removed from the Gospel as Popery itself.

"Is it not, then, time that this fallacy should be exposed and denounced? Ought not Christians to be brought to see that the religious system with which Christ and His apostles blessed the world is not characterized by mere Protestantism, but as scriptural and primitive Catholicity; that, therefore, the true blessings of the Reformation are not to be found in mere departure from Rome, but in return to Christ, to the principles, faith, and order of His one Holy Catholic and Apostolic Church?"

A great outcry has been raised of late years against what its opponents are pleased to call Ritualism, and loud calls upon our bishops to check its progress. Now, we are far from upholding any *useless* ceremonial, or unauthorized ornament, but neither do we wish to condemn. We prefer letting the whole matter alone, "for if this counsel or this work be of men, it will come to naught; but if it be of God, ye cannot overthrow it." We agree with the views of the *Protestant Churchman* on this matter, where it says: "It is not easy to see what the bishops can do effectually to curb it. Even if these excesses were clearly of a character and of a measure of aggravation to warrant episcopal discipline, past and current history do not cause us to be enamoured of the exercise of irresponsible power by the bishop. It is true the last general convention left the regulation of this matter of ritual with the ordinary. But if that authority were arbitrarily exercised, especially where the practices in question are common, it would probably do more injury to the bishop's personal and official position than good to the Church. It is a lesson we must all learn, and the sooner we learn it the better, that Americans

are to be ruled by influence rather than arbitrary discipline. We want *liberty* in this Church, not proscription. Either the Church must be divided, or its two historic schools must be left to their own free development."

And, in all candor and fairness, it cannot but be admitted that the Catholic party have some grounds on which to base their practice, namely, the Acts of Uniformity under Charles, Elizabeth, and Edward VI., sanctioning and legalizing the rubrics and ornaments of 1549.

We find similar ceremonial-usages and vestments in that ancient ecclesiastical body—the Greek Church; which is quite independent of the Bishop of Rome. They rear the cross on their altars, and place beside it the altar-lights. The very vestments prescribed by the rubric of Edward's first book, the alb, chasuble, cope, biretta, and surplice, are all in use; intoning by the priests and chanting by a vested choir are practised. Their chancels have rood-screens, and the altar and credence-table, under different names, and somewhat differently vested, yet with equal magnificence, stand in similar places as with us. The Greeks keep Lent for eight weeks with extraordinary severity, living for the greater part on vegetables alone. A few devout Churchmen among ourselves are accustomed to take the Holy Eucharist fasting, but in the Greek Church this pious custom is universal. Their priests are under the control of archbishops and other bishops, and their churches, of course, are consecrated, but in a much more elaborate manner than ours. Thus we see that stately ceremonial and ritual observances are not, by any means, exclusively the badge of the Church of Rome, inasmuch as the Greek Church, which for centuries has been the strongest enemy of the Papacy, upholds a ritual system far more strict and elaborate than her sister Church in England.

It is matter for congratulation, that in this our day the true position of the Greek Church—the Church which "led the way in opposing the un-catholic assumptions of the Pope of Rome, which has preserved the ancient discipline and kept the Creed *intact*"—is beginning to be recognized, and efforts are being made toward joining with her in the "communion of saints." To quote the words of an English writer: "The cause of

Almighty God, the cause of the universal Church, the privileges and rights of bishops and priests as against one universal Pope, are borne witness to now, as they have ever been, by the immutable East. Here, at least, are no sympathies with the heresiarchs of the sixteenth century,—the synod of Bethlehem has anathematized Luther and Calvin as decidedly as the Council of Trent. Here was no Henry VIII., fixing his supremacy on a reluctant Church by the axe, the gibbet, and the laws of præmunire and forfeiture,—no State using that Church as a cat's-paw for three hundred years, and ready now to offer it up as a holocaust to the demon of liberalism. Here is the ancient patriarchal system,—the thrones of Constantinople, Alexandria, Antioch, and Jerusalem subsisting still. Here is the same body of doctrine, * * * the same mighty sacramental and sacerdotal system, which Latitudinarian and Evangelical, statesman and heretic, dread, while they hate—as being the visible presence of Christ in a fallen world—the residence of a spiritual power which controls and torments the worldling, while it disproves and falsifies the heretic.

"In the Fathers of the undivided Church, the East and the North, so long severed, meet. We are not alone, who have with us, on the very point which divides us from our mother Church, the still unbroken line of successors from St. Athanasius and St. Chrysostom.

"*We* fight, it must be admitted, at disadvantage with our opponents. The long subjection which our Church yielded to Rome, * * * the complete unsettling of the ecclesiastical and doctrinal system in the sixteenth century, * * * the connection with those whose doctrine has now worked itself out into Socinianism, infidelity, and anarchy, the inability we have ever since been under of shaking ourselves clear of them, the thoroughly unsatisfactory position of the State toward us as a Church at present—all these things are against us—all these things tell on the mind which really lives and dwells on antiquity, and looks to the pure Apostolic Church. Still, though they weaken, they do not overcome our cause. But from all these objections the witness of the Eastern Church is free. They were never subject to Rome, but to their own patriarchs; they

derived not their Christianity from her, but she from them. The priesthood, and the pure, unbloody sacrifice, and the power to bind and to loose, remain undisputed among them; the Eastern mind cannot conceive a Church without them. They have received no reformation from those whose lives were a scandal to all Christian men; they are not mixed up with the Lutheran or Calvinistic heresy, nor has Erastianism eaten out their life. If they are schismatics, as the Church of Rome pretends, so are we, and on the same grounds.

"The Eastern Church has put forth the most convincing sign of Catholicity —life. To her is due the most remarkable conversion of a great nation to the faith that has taken place in the last eight hundred years. Russia * * * is a witness of the Greek Church, that she is a true member of the One Body. Rome cannot show, since she was divided from the East, a conversion on so large a scale, so complete, so permanent. And on that great mass she has hitherto made no impression. * * * And this body, like ourselves, denies that particular Roman claim for which Rome would have them and us to be schismatics. And it has denied it not merely for three hundred years, but from the time that it was advanced. Truly, all that was deficient on our side seems made up by the Greek Church."

Holding, then, the true Catholic faith, in common with our brethren of the Eastern Church, let us emulate them in conducting the service of the altar with due solemnity and magnificence, and make it our pride to adorn God's house with all the splendor we can afford,—instead of, like the Puritan, piquing ourselves on a cheap, ugly church, and a barren, unadorned service. Rather should we seek to offer the best of His gifts to the Almighty, than dwell in fine houses ourselves, replete with every luxury that lavish expenditure can procure, while a desolate looking church, and shabby, barren altar are thought good enough for God! A truly catholic spirit will prefer a plainly furnished house, and a church beautified to the fullest extent.

It may not be amiss to quote in this connection the spirited, if, perhaps, somewhat radical, remarks of an eminent English divine. He says: "If ever an evil

spirit has appeared on this earth of such a character as to put men out of patience with its inconsistencies and absurdities, that spirit is Puritanism. Already has this powerful and remorseless agent directed more than one Quixotic foray against art, and even now it has power enough to fill the minds of multitudes with fears and prejudices more potent than all the holy persuasions of a Fra Angelico; cheating them into giving up the fairest things of all their heritage, stripping religion of all the beautiful garments in which the Almighty clothed her, and maintaining that she appears to better advantage in the beggarly style of a pauper than in her own proper robes of royal state. O Puritanism! Puritanism! Thou that abhorrest pictures and flowers, stained glass and altar cloths! Thou that lovest whitewash and blank hard-finish! Thou that eschewest whatever can move the senses or appeal to the imaginative faculty! With what amazement shalt thou hereafter discern the glories of the heavenly city—the new Jerusalem! With what unutterable feelings shalt thou find thyself passing in through the gates of pearl, and traversing the streets of pure gold! With what a puzzled and incredulous stare shalt thou regard the walls of precious stones, the jaspers clear as crystal, the sapphires, the chalcedonies, the topaz! How wilt thine eyes be dazzled with the unfamiliar light as of jewels, and transparent glass, and crystal! In the midst of the golden altars, and the choirs robed in white and crowned with gold, and the angels with rainbow colors around their heads, what shall be thy feelings? What shall be thy thoughts when recalling thy former babbling about the incompatibility of purity in religion, and outward splendor in Divine worship? Wilt thou even *then* be unwilling to confess thyself in the wrong?"

And we may rest assured that in properly adorning the sanctuary, we are following the commandment of God Himself. We know that He gave minute directions for the building of the temple with the utmost splendor. And if it was obligatory on the Jews, when they had only the partial revelation of His grace, how much more is it binding on us, who have received from the first the highest manifestation of His goodness and favor

toward us. Because the unbelieving Jews would give the promised Messiah when He came among them no better lodging than a stable, that is no reason why we should follow their example, but we should endeavor, as far as human means will go, to make His sanctuary upon earth a fitting abode, prefiguring, no matter how faintly, the glories of the Heavenly Jerusalem.

DESIGN XIII.

The accompanying design is intended for a parish church of an elaborate character. It contains between seven and eight hundred sittings on the ground floor, with six ranges of pews. The chancel is apsidal, and some thirty-five feet in depth. On the south there is a chancel aisle for the benefit of retiring communicants, which also acts as an eastern entrance and baptistery, while on the north side is the organ and sacristy.

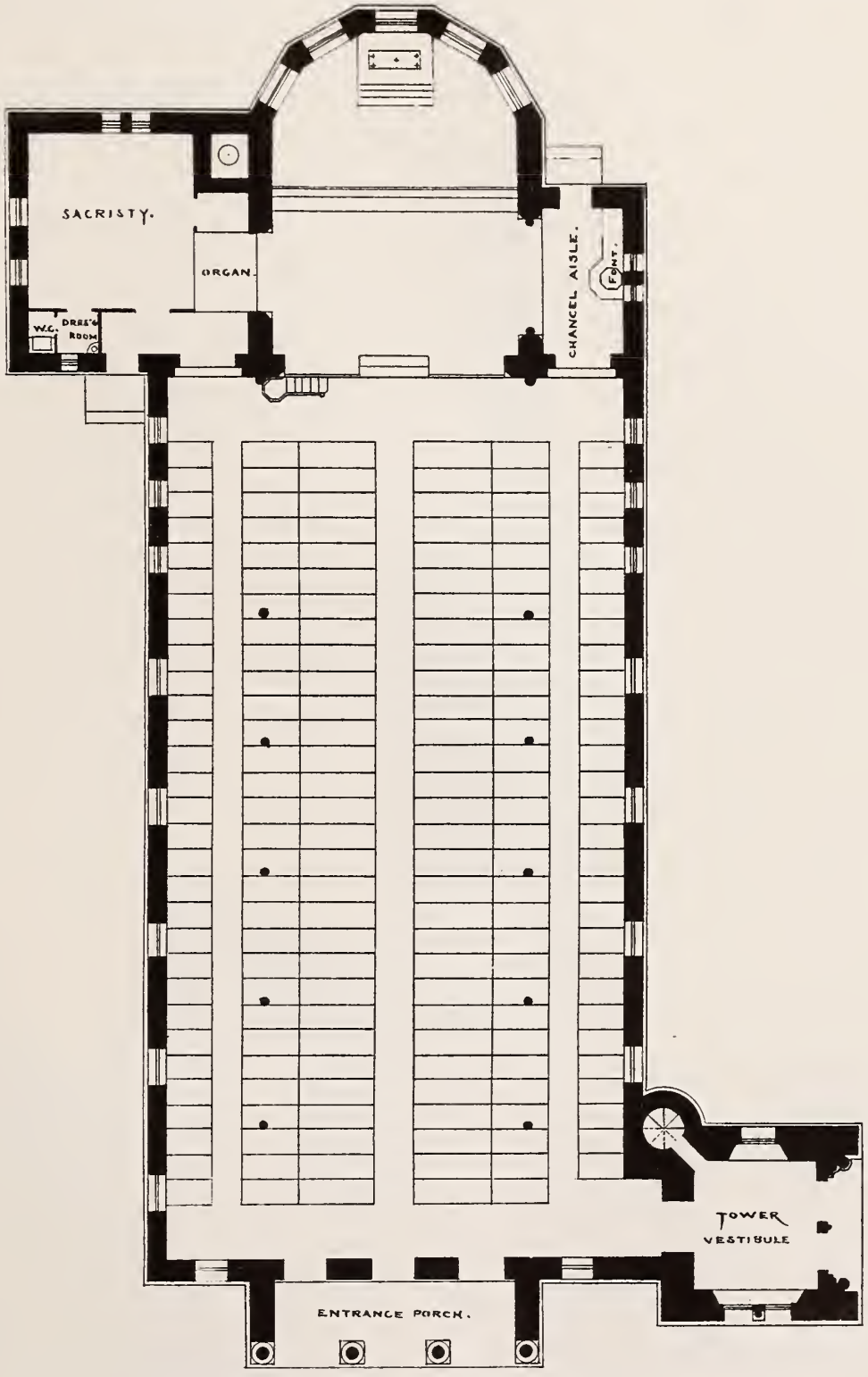
The tower, of a somewhat Italian type, is original in design—much higher than usual, and surmounted by a lantern instead of a spire. The entrance porch is also an ornamental feature, having columns with capitals and bases of white marble, the former elaborately sculptured. The shafts are of polished Aberdeen granite, which not only has a very rich appearance, but, contrary to colored marbles usually, has the advantage of withstanding the weather without injury to surface or color. Fine carved work adds greatly to the beauty of a building; much of the charm of mediæval works is owing to the profusion of admirable carvings with which they were adorned. Natural forms of leaves and flowers were the models for imitation, those frequently being chosen which were peculiar to the neighborhood. They were, however, conventionalized in the same manner as the eagle lectern, elsewhere alluded to.

Every capital bore a different leaf, as the ivy on one, the hawthorn on the next, etc., or they were adorned with a series of figures, representing the virtues and vices, or scriptural subjects. We may instance an example where all the capitals on one side the nave represent parables, and on the other miracles of our Lord.

The expense of sculptured capitals is frequently a serious drawback to their introduction as adding very largely to the cost of the building. This, however, may be avoided by putting up the capitals in the block; cutting only one or two to show the design, the remainder

PLATE 27.

DESIGN 13.

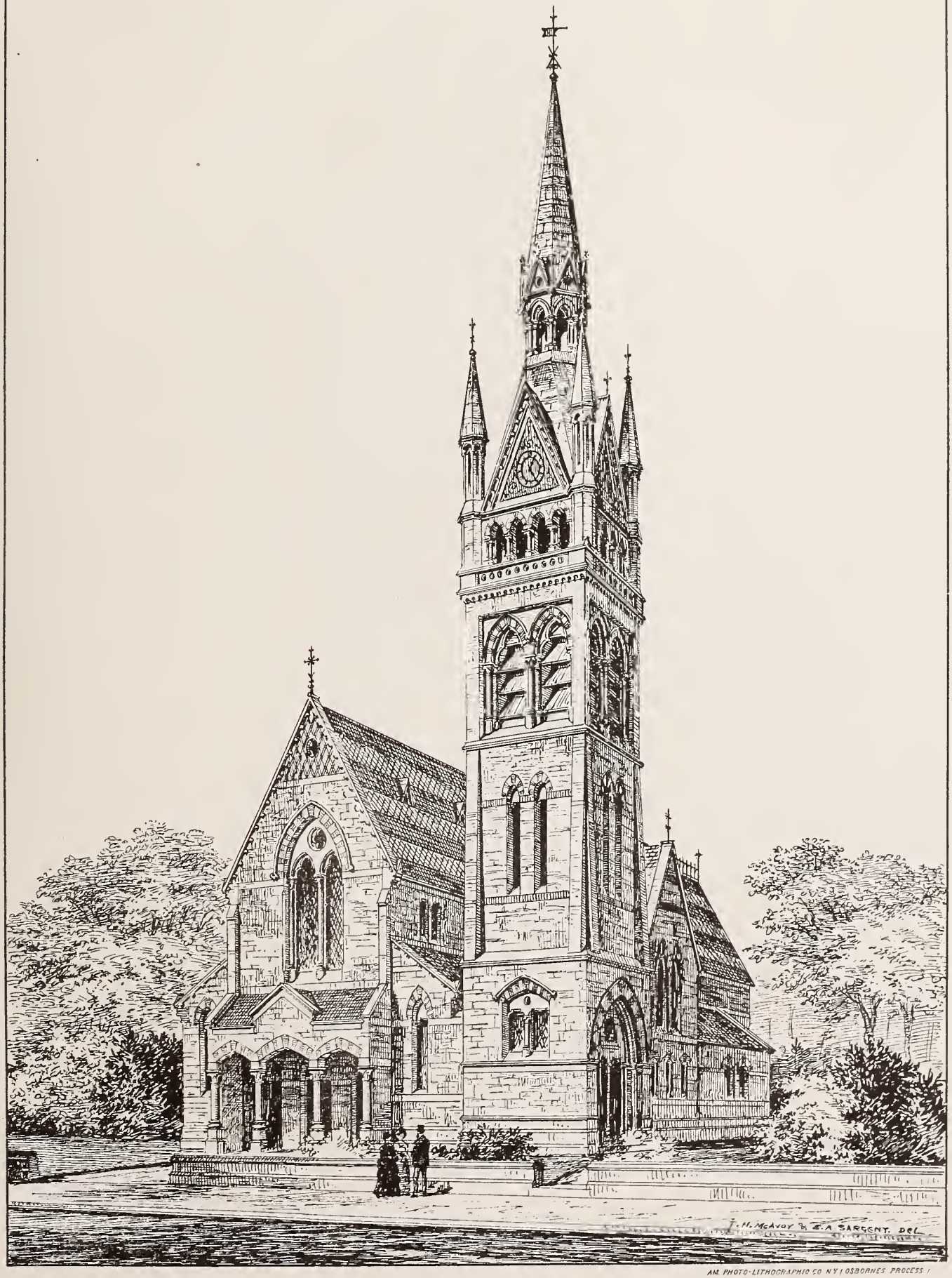


GROUND PLAN.

0 10 20 30 40

PLATE 28.

DESIGN 13.



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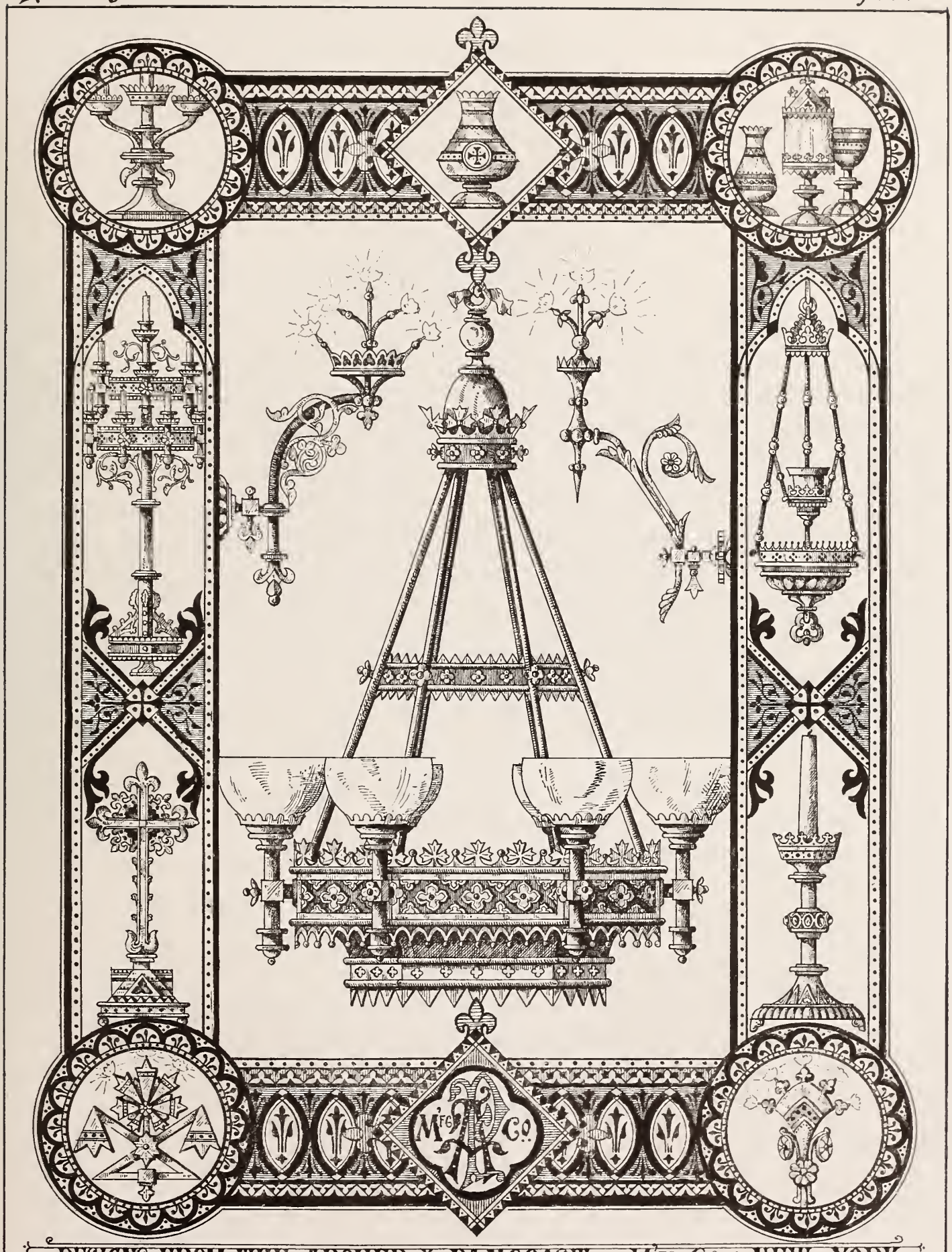
PERSPECTIVE VIEW.

being left in the rough to be finished at a subsequent period. In this way all the capitals of a nave may be executed, from time to time, perhaps long after the church is otherwise completed.

Too little attention has hitherto been paid to the subject of gas-fixtures. We have often seen churches of fair design positively disfigured by the lighting arrangements—which were as utterly incongruous and out of keeping as those "bargains from auction" with which some persons are fond of filling their houses. The fact is, that the gas-fixtures are usually selected after the building has passed out of the architect's supervision by a "lighting committee," of the best intentions, but who usually have no idea that church fixtures should differ in any way from those proper for a theatre. These worthy individuals are tolerably sure to invest in a vast amount of gilt and glitter—"as much poison as can be had for the money"—worked up into hideous brackets, with globes of ground glass, which are fastened round each of the nave columns. This seems at first thought the natural and most convenient way of accomplishing the result, but is in fact the most faulty that could readily be devised; for, in the first place, one half of each light is cut off by the column, so that double the number of fixtures is required as by a proper method of lighting; and, again, the effect of the column is materially injured, as many an architect has reason to know. His feelings on the subject are, indeed, much the same as, when he has erected a superb marble warehouse or block of offices —the effect is utterly ruined by the rabble of incongruous sign-boards, with which its front is liberally hung. Where he has designed an elaborate detail, flares the announcement that John Smith, attorney-at-law, does business within; and to the pierced tracery of a graceful balcony is affixed a huge board to let the world know, in letters a foot long, that Thomas Brown sells stockings here. It is all very well to have signs, but they should be embraced in the architect's design, and put up under his supervision—not stuck on helter-skelter, without the slightest regard to appearances. So, too, it is as much the architect's place to make or select appropriate patterns for the gas-fixtures of a church, as for him

to design the spire or arrange the chancel.

The correct fixtures for a church are either chandeliers having the form of coronæ, and hung from the apex of each bay, or, if these are considered too elaborate or expensive, by standards placed between the columns. The accompanying plate shows some specimens of very excellent style for church purposes.



DESIGNS FROM THE ARCHER & PANCOAST M'FG CO ∴ NEW YORK

AM. PHOTO-LITHOGRAPHIC CO N.Y. (OSBORNE'S PROCESS)

CHAPTER XIII.

SPIRES.

Of all Christian symbols the spire is, perhaps, the most striking, and full of meaning. While the massy walls and square, solid tower underneath seem expressive of the enduring nature of Christ's Church, lightly mounting from the summit, amid clustering pinnacles, the stately spire crowns the whole noble work, and speaks the upward yearning of the spirit for its heavenly home.

In ancient examples the spire usually surmounted a ponderous rood-tower, which occupied the intersection of nave and transepts, resting on the corner-piers, and supported by lofty arches, whose spring met the line of the groined ceiling. Frequently two spires of inferior altitude surmounted two smaller towers, which flanked the western front, differing from the rood-tower in their springing from the ground instead of the roof. These, however, were never used except in subordination to the central tower. The practice of our modern architects errs in this respect, they frequently making use of two western towers exactly alike, without regard to subordination—an example of which we find in St. George's, New York, and its near neighbor, Calvary.

It is always painful in a painting to see two equally prominent objects represented. Thus, in Raphael's cartoons, our Lord is the central figure on which our interest is mainly concentrated, and the other figures, though full of spirit and character, fall into the background and are subordinate to the main subject of the picture.

It would not answer to have two generals of equal rank in an army, or two equal sovereigns in a kingdom; conflicting interests would put an end to both discipline and government; in order to preserve harmony, one must be a little

below the other. In the same way, if one spire is a little less important in size and elaboration than the other, the proper effect is secured.

We may, however, have almost any number of spires subordinate to the central one—as at Caen Cathedral, which has no less than five; the principle is the same as placing pinnacles around the base of the individual spire. Sometimes we see four, and sometimes eight, of these; but here, again, we object to the total omission of the spire, and the substitution of a parapet, flanked by four pinnacles, all of a size. "This arrangement produces," says Mr. Ruskin, "the exact effect of a dining-table with its legs in the air." If one pinnacle be carried up higher than the others, the evil is corrected at once.

It was undoubtedly intended that spires should be added by a future generation, when omitted by the mediæval builders, and the parsimony or careless neglect of their descendants must be held accountable for the absence of these crowning beauties. Such unfinished work has been aptly called "broken promises to God."

This omission also leaves the tower flat-roofed—as essentially a pagan characteristic as the spire is peculiarly Christian. "The spire never adorned the shrine of a heathen god—never glorified the mosque of a false prophet; but when, at last, the Church of Christ felt the 'beauty of holiness,' it exhaled from the growing perfection of the Church as fragrance from an opening flower. It is, therefore, peculiarly a monitor of grace, and the solemn peal of its bells sounds a knell which, unlike that heard by Macbeth, summons us only to heaven."

The most famous spires in England are those of St. Michael's, Coventry, Chichester Cathedral, Lichfield Cathedral, and, specially, the magnificent spire of Salisbury. Its summit is four hundred and four feet from the ground, and the masonry, nowhere more than seven inches thick, attests the skill of its construction. It has three broad bands of tracery, and eight pinnacles at the base, and the ribs are fretted throughout with elegant crockets. Besides Salisbury, the tallest spires now standing are those of Strasburg Minster, four hundred and seventy-four feet; St. Stephen's, Vienna, four hundred and sixty-nine feet; Notre Dame,

Antwerp, four hundred and sixty-six feet. The highest in this country, until lately, was that of Trinity Church, New York, two hundred and eighty-four feet; but that of Holy Trinity, Brooklyn, has been carried up a few feet higher.

Not only were magnificent spires erected on the splendid cathedrals of ancient days—in many a secluded village we may find works of proportionate beauty, where the builders could not have hoped for more than the ignorant admiration of country people. Such good deeds, done not "to be seen of men," are a striking proof of the sincere and ardent piety of the men of old.

There is a symbolism in the cock which usually crowns the church spire, which has been thus explained by Bishop Durandus: "The cock at the summit of the church is a type of the preacher. For the cock, ever watchful, even in the depth of night, giveth notice how the hours pass, waketh the sleepers, predicteth the approach of day—but first exciteth himself to crow by striking his sides with his wings. There is a mystery conveyed in each of these particulars: the night is the world; the sleepers are the children of this world, who are asleep in their sins; the cock is the preacher who preaches boldly, and exciteth the sleepers to cast away the works of darkness, exclaiming—'Woe to them that sleep!' 'Awake thou that sleepest!, and then foretells the approach of day when he speaks of the day of Judgment and the glory that shall be revealed; and, like a prudent messenger, before he teaches others, arouses himself from the sleep of sin, by mortifying the body. And as the weather-cock faces the wind, so he turns himself boldly to meet the rebellious by threats and arguments."

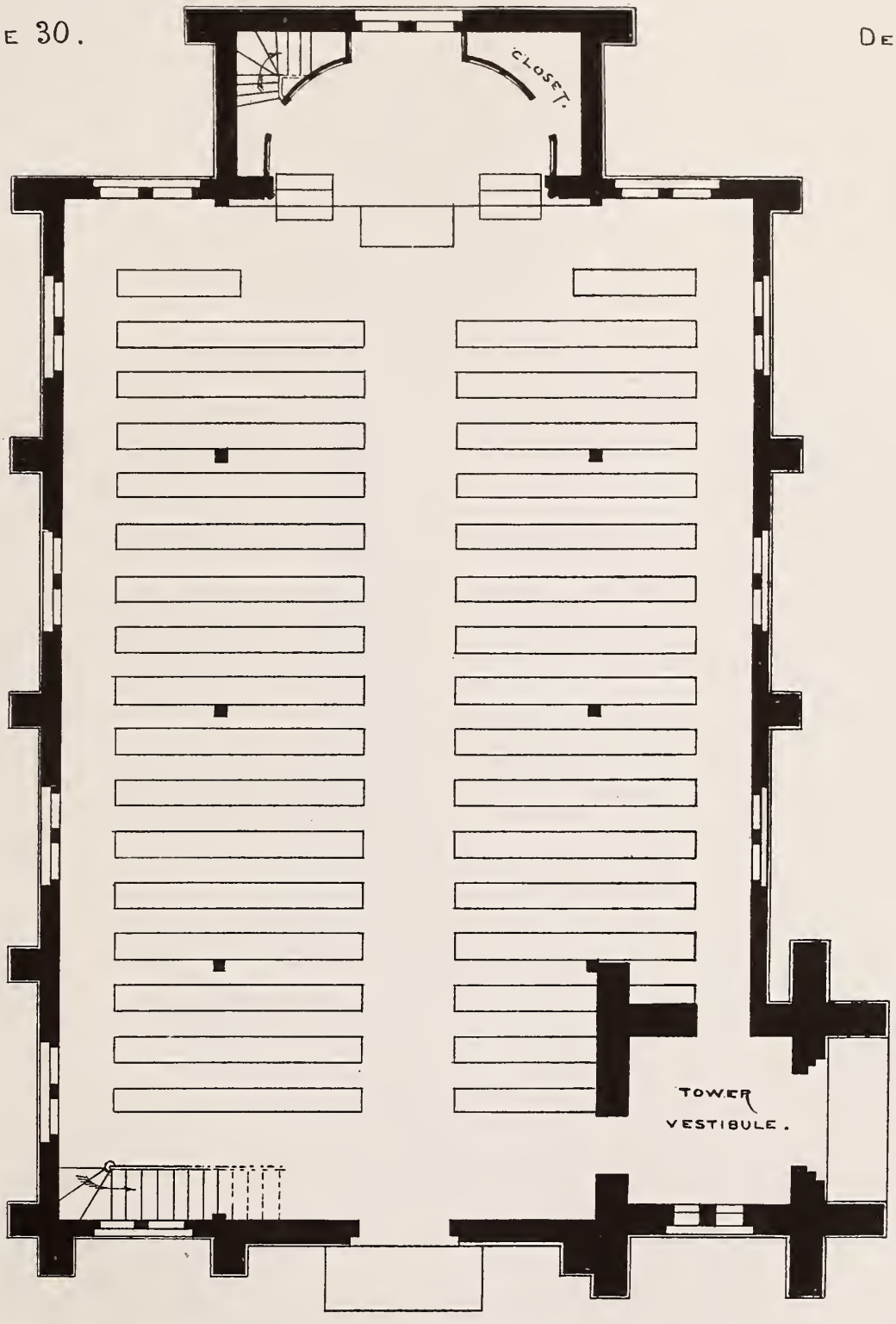
Towers are correct in any position, except the east end of the chancel. In design XVI. we have shown a single tower, placed at the northwest corner of the church. There is an economical advantage to be derived from this position, as the walls being lowest at the corners, the tower need not be carried up so high to be in proportion, and, consequently, the base may be smaller. In this design the tower is eighteen feet square, and one hundred and forty feet in height, while in design IX., where the single tower is placed in the centre of the building, it

is twenty-seven feet square, and two hundred and fifty-two feet high. We thus see that these two positions require towers and spires of differing altitude, in order that proportion may be observed.

It is true some utilitarians, who apply to everything the test question, "What's the use of that?" will consider the spire a mere useless appendage—a waste of money and material; but, we may ask, of what use are the lilies? why should the sky be blue instead of black? why has the lark a thrilling song? or, why should any beautiful thing exist which cannot be accounted for by value received in dollars and cents? Such sordid ideas can have no weight with the artistic, the refined, and, we may add, the Christian mind; and as we kneel in prayer beneath the hallowed roof of the church, we may well trust that our hopes and aspirations, leaving this dull earth, may, like the spire, mount untrammelled to the infinite heaven!

PLATE 30.

DESIGN 15.



Ground Plan.

0 10 20

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

PLATE 31. DESIGN 15.

PERSPECTIVE VIEW.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

DESIGN XV.

The following plan was intended for a Presbyterian church to be erected in Connecticut, and contains some three hundred sittings. The tower at the right forms a capacious vestibule, while there is another entrance in front. The great advantage of a vestibule is for breaking the stream of cold air in winter, as the outside door may be closed on entering before opening the inner one; whereas, when there is only a direct entrance to the building, the sudden rush of cold air has the effect of chilling the entire congregation. It is, therefore, intended in inclement weather to use the tower entrance alone, keeping the front door entirely shut until the close of the exercises; as the vestibule entrance would not admit of the congregation leaving in a body, and the warmth of the building being then of less consequence, the front door may very properly be thrown open.

There is a gallery across the front of the church, which is approached by the staircase shown at the left. This feature we would rather have avoided, as it gives the building a depressed appearance on entering.

CHAPTER XIV.

CHURCH CLOCKS.

The history of clocks is very imperfectly known, as by some they are supposed to have been invented in Italy as early as the ninth century, while we find no certain mention of them until about the thirteenth. It is said that the first clock made in England was furnished out of the proceeds of a fine imposed upon the chief justice of the King's Bench, in 1288; and that it remained in its original situation in Old Palace Yard as late as the reign of Elizabeth. In the reign of Richard II., a large astronomical clock was made by Richard of Wallingford, abbot of St. Albans, which was regulated by a fly. But the most ancient clock of which we have any certain account was erected in a tower of the palace of Charles V., of France, about the year 1364, by Henry de Wyke, a German artist. A clock was erected at Strasburg about 1370, and one at Spires in 1395. In the following century public clocks appear to have existed in all the principal towns of Europe, and private ones to have come into very general use.

The earliest clocks were no doubt very rude and imperfect affairs; that of Henry de Wyke, mentioned above, being regulated by an alternating balance, which was formed by suspending two heavy weights from a horizontal bar, fixed at right angles to an upright axis, and the movement accelerated or retarded by diminishing or increasing the distance of the weights from the axis. It had no regulating spring, and the action must, consequently, have been very irregular. The capital improvement of the pendulum dates from about the middle of the seventeenth century; but it is very uncertain by whom the application was first made or proposed.

Another invention, which marks an epoch in the history of horology, is that of counteracting the changes of temperature on the pendulum-rod and the balance. The mercurial compensation-pendulum was invented by Graham, about the year 1715; which was afterward superseded by the modern gridiron pendulum.

On the subject of large clocks and clock-towers we still have very little satisfactory knowledge or system, as regards either their art, aspect, or practical working. Simple as it would seem to arrange this matter correctly, we may say that if there be a *pons asinorum* of architecture, it is the artistic treatment of clocks, and the production of really useful and well-designed clock-towers.

And, first, the shape of the dial. What can be a less pleasing object than the round, staring face of an ordinary church-clock—filled with figures that have no pretensions to beauty, and apparently stuck upon the edifice without any definite reference to the design? Why, in fact, must they *be* round? Why not behind a quatre-foil of carved stone? The minute points are of no importance at so great a distance from the eye, and there is no reason why the figures should not be supplanted by large spots, in strong contrast with the dial, as white or gold on dark blue or black. The fact that the hands must be hidden at their free extremities, and therefore appear of varying length when working behind a non-circular opening, may be taken into account, and made to serve a useful purpose in the design. On reflection, it will be found that we look in viewing the clock not upon the face, but at the relative position of the hands; and the fact that the general public are used to the circular face, is no reason why they should not in time become accustomed to a more picturesque form. Sir Digby Wyatt, speaking on this subject, says: "It is not well to make a violent contrast between the periphery of the dial and the stone, or other framework in which it is set, because if this precaution be neglected, the eye will be apt to run round the exterior before settling on the hands"—thus indirectly confirming our objection to the circular form.

And, now, as to the towers—why must

they, one and all, assume the same conformation? Under existing circumstances, clock-towers are nearly all modelled on the principle of the clock-case of our great grandmothers—a coffin standing on end, with a round or square hole cut in the uppermost portion of the lid to display the face. When any other tower is to be erected, taste and fancy are called into requisition, merely under conformity to the particular style or order attempted in the edifice; but when it comes to the clock-tower, some law, as unalterable as those of the Medes and Persians, would seem to decree that they shall all be of the same stereotyped pattern.

Supposing a happy design to have been arranged, we have next to consider what are the practical conditions to be fulfilled.

Considerable controversy has been raised in regard to the size of dials. The great defect seems to lie in getting them too small. No one could imagine, without some practical experience, that a dial should be eight feet in diameter at sixty feet high to appear of the same proportionate dimensions as one of four feet at an elevation of thirty. Yet this is actually the case. The rule laid down by English authorities is, that taking four feet as the diameter for a thirty-foot elevation, the size should be increased one foot for every eight thereafter. The weights of a clock of this kind become something formidable; and as they should have an average run of sixty feet, the accidental falling of one of them would probably carry away everything in its progress. It is, therefore, necessary to allow the weights a clear fall to the cellar floor, or else, to provide against accident by having them cushioned. Sometimes they are enclosed in a box of sawdust, which would act as a sort of buffer. It is always best to have the weights directly under the works; yet, if this should prove inconvenient, it is perfectly possible to guide them off by means of pulleys to any channel where they may be protected and out of the way.

It is peculiarly important to make ample provision for a clock, and in order to do this, it is well to originally prepare the design in consultation with the horologer or clock-maker, as for want of

this perfect understanding on both sides, alterations, both difficult and expensive, have frequently to be made. At the same time it may be useful and interesting to enumerate here a few of the requisites.

It seems almost impossible to lay down any rule for the size of clock-chamber or level of clock-floor. (Of course it will be understood that the works are placed some distance below the dial, and connected by rods with the hands.) The suggestion has been made that the diameter of the dial, *plus* two feet, might be adopted as a suitable gauge for width, height, and length—including space for winding; and if the floor of the chamber be placed the same number of feet below the centre of dial, the rodding for the hands would be sufficient without waste. The same sliding scale could be taken as a guide for the arc of vibration of the pendulum, which in large clocks is seldom less than fourteen feet in length, and in all cases should be as long as circumstances will admit.

There should be no enclosure of the works in a case of wood, the consequent darkening and encumbering of the clock-chamber greatly increasing the difficulty of repairing and oiling the works, to say nothing of the danger from fire. Glass sashes will be found best for such purposes, as not obstructing the light. Three or four openings into this case from the outer air should be made, to prevent the accumulation of damp, closed with wire gauze to keep out dust, which would soon cause derangement of the works.

To provide adequate support for the heavy clock-frame, an English writer recommends either rigid beams of iron, or comparatively elastic ones of timber. The advantage of the rigid beams is, that in fair weather the clock goes better; their disadvantage, that in storms they communicate instantly to the clock every shock or vibration of the tower; and these, where the latter is slight, are no trifle—as any one will know who has once been up among the bells in a high wind. If wooden beams are used, the good and bad points are exactly reversed. Perhaps, therefore, the best arrangement would be, to adopt the iron beams for large clocks in very massive towers, where the clock is at no great

height, and trussed beams in other cases. Trussed beams are better than untrussed, since the latter will, in course of time, acquire a "set" under their permanent load, which might disturb the going of the clock, by altering the position of the works with reference to the dials.

The shape of dials would be much improved were they to be made concave instead of convex—as in the latter form the minute-hand, being necessarily outside the other, is thrown still farther off the minutes to which it has to point; and, consequently, when it is in any but a vertical position, it is almost impossible to be certain where it is pointing. When the dial is of stone, the middle may be countersunk for the hour-hand, so that its fellow may go close to the minutes and avoid parallax. The long-hand should be perfectly straight and plain, and the shorter end in a "heart" or swell. They should be counterpoised on the outside, in preference to within, otherwise the force of the wind is apt to loosen them on the arbor (or axis).

As to the material of the dial, stone, slate, glass, majolica, enamelled iron, or copper, which have their colors fixed by vitrification, may, any of them, be used with propriety, but the worst forms are those "skeleton dials," having no middle except radiating bars of stone, which seem placed there expressly to perplex the spectator. It would be better to have none at all, so far as ascertaining the time is concerned, and leave the hours to be told by chimes. Also, in designing ornamentation for the face, care should be taken to avoid straight lines in the patterns, these also having a tendency to distract the eye; and for the same reason avoid a rim around the outside, of the same color or gilding as the figures.

There is usually an objection to illuminated clocks, from the fact that there is difficulty in seeing the hands and figures during the day. It is well known that white on black can be seen much more readily than black on white; we would, therefore, suggest that the face be either black or dark blue, and the figures white. Of course, the question would then be asked, How is such a face to be illuminated? but we would suggest that this might be accomplished in the following manner:

Let the face be of copper, painted black,

and the figures and hands perforated and filled with white transparent porcelain. The dial would be constructed in three concentric discs, the outermost, containing the figures, stationary, and the others, with the perforations in them, which would serve as hands to revolve. This arrangement would also avoid the necessity for counterpoising the hands.

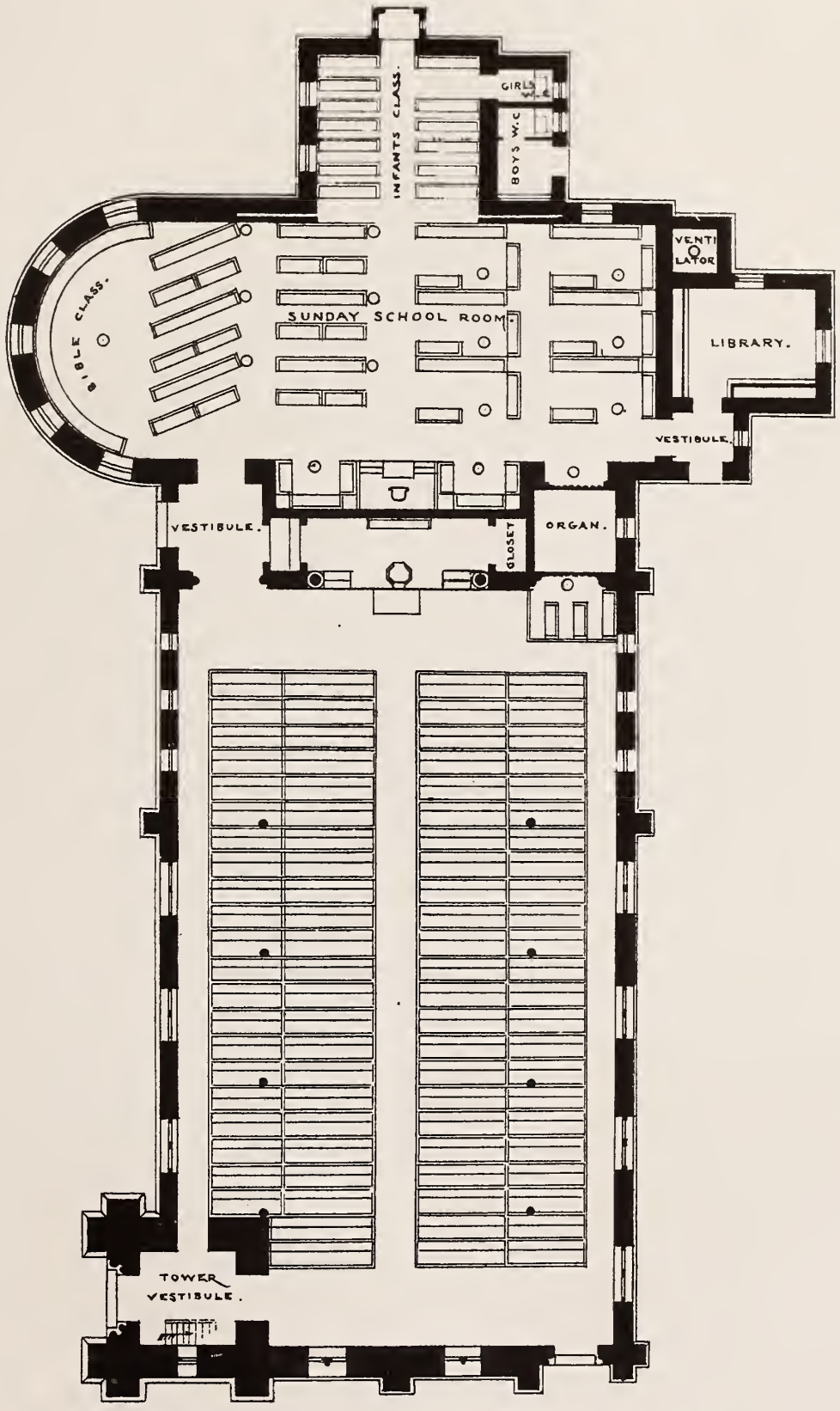
When the dial is illuminated from within, the works should be protected from the products of combustion by a screen of brickwork between them and the jets, covered on the dial side with a white reflector. Two jets, properly arranged, are sufficient for a face of six feet diameter. These are kept constantly turned on, and raised or lowered at the proper times by mechanism connected with the clock itself, and regulated by pins, set in by hand, according to the length of the days.

A good feature in every clock-tower, which could be made to harmonize with the style of the building, would be the introduction of a balcony, accessible from within, just beneath the dial. The advantage of this, when cleansing or regilding of hands or figures is required, is obvious; as otherwise the work would have to be done on scaffolding, at a needless expense and risk of men's lives. Here, too, might be placed gas-jets with reflectors, when it is not desirable to have a face illuminated from within.

Clock-bells are of all kinds, from one large bell, merely striking the hours, to fifteen small ones, playing tunes. As clock-bells do not turn upward in ringing, like the church-bells, care must be taken to hang them sufficiently high, and to have them in as open a situation as possible. Glass louvres have been recommended for filling the openings, but none at all would be better. Instances have been known of small bells playing tunes being distinctly heard at a distance of two miles from the church; while others, far larger ones, could be heard only half a mile, owing to the different method of hanging, and the greater amount of enclosure in the latter case.

PLATE 32

DESIGN 16.



GROUND PLAN.

0 10 20 40 50

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

DESIGN XVI.

This design, which was intended for a Presbyterian society, is composed of tower, nave, and aisles; the tower acting as a spacious vestibule entrance. There is also a smaller rear entrance, which accommodates the Sunday School or lecture-room. The clergyman has an entrance opposite to this, which approaches the recessed platform. There is also an outside door at south of Sunday School, and one at west end of south aisle. The organ occupies a position between the auditorium and the Sunday School, and is so arranged as to accommodate both—having a key-board on either side. The pulpit recess has a window above the ceiling of Sunday School room, receiving light from a skylight situated upon a flat portion of the roof. This flat is arranged to fill up the valley which would otherwise exist between the end of nave and Sunday School roof—thus avoiding the danger of snow lodging and causing a leak. Another advantage of this arrangement is that the recess-window may be illuminated at night.

The infant-class is connected with the Sunday School by sliding-doors—separating it entirely during recitations, while it may with equal facility be thrown into the main room at opening and closing the session. The sittings are arranged in two ways on plan, that on the right showing their disposition for classes, while that on the left is the arrangement in case of a lecture; in which case the infant-class room is equally available.

The number of sittings is distributed as follows:

Auditorium, 517.

Sunday School, 172.

Infant-class, 65.

Bible-class, 20.

We have as yet said nothing with regard to one of the most important matters in the building of a church, or, indeed, any other structure—the foundations. This, however, should meet with the utmost attention, as, should any imperfection exist here, very serious conse-

quences are liable to ensue. A few words on their proper construction may be of interest.

In commencing a building it is usual to spread the bottom course of masonry considerably beyond the face of the superincumbent work, as by distributing its weight over a larger surface, the liability to settle is greatly diminished; and, again, in an isolated structure these footings, or spread courses, form a protection against its being thrown out of upright by the action of the wind.

Where the footings are of great width, in consequence of the unstable nature of the ground, or where rendered necessary by the massive nature of the buildings above, it is well to have them coursed in several layers, diminishing toward the top, on the principle of steps. But where neither of these causes exist, a footing course of large stones, running through the wall, and projecting on either side from six to twelve inches, may be considered sufficient.

Where the ground is very soft, and a large bearing surface is required, planking may be resorted to—which is an excellent method, provided that the timber can be kept from decay. If the ground be wet, and the timber good, there is little to fear; but in a very dry situation, or one exposed to alternations of wet and dry, decay is very apt to ensue. The advantage of planking is, that it will resist great cross-strains with very trifling flexure; and, therefore, a wide footing may be obtained without any excessive spreading of the bottom course of masonry.

A common practice, where the ground is unstable, is to apply a coating of concrete. This, in ordinary cases, answers an excellent purpose, yet too great faith should not be placed in it, as even, at the best, it possesses little strength when exposed to transverse strains, to overcome which it requires to be thoroughly banked up on either side.

Concrete is made of gravel, sand, and lime, mixed together with water; the slacking of the lime taking place while in contact with the first-named materials. The proportion of lime and sand should be such as is best suited to form a cement to connect the stones; it is, however, difficult to say exactly what these proportions should be, as they differ with

PERSPECTIVE VIEW.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNE'S PROCESS.

the quality of the lime used. The stones ought to be of various sizes, and angular, rather than round. Lime concrete, however, is of but little use in wet situations, for which it would be proper to use hydraulic cement.

It is well to notice, in regard to nave columns, that since the foundations of one of these may possibly rest on softer ground than the others, causing the settlement, if any, to be unequal, it is best to unite these foundations into a continuous wall, giving a greater bearing for all the columns. If connected by inverted arches, the settlement of one column is counteracted by the weight of another. Inverted arches, however, should only be used where there is a proper abutment on both sides; otherwise any failure would have the effect of throwing out the walls. These arches it is also well to place under any large opening, such as the chancel arch, and also under doorways and windows, if of great width. This prevents one side of the opening settling more than the other—a serious misfortune, tending to disjoint the surmounting arch, to the great detriment of the edifice.

Lastly, it is of paramount importance that all foundations be carried below the action of frost, as should the frost get under the foundations, the result would be the upheaval of the walls.

CHAPTER XV.

BELLS.

We cannot take an interest in spires and belfries, without having recalled to our minds the bells, which, from their lofty post in mid-air, pour forth their solemn voices in summons to the faithful to assemble for prayer and praise, in rejoicings on the bridal morn, and in mournful requiems for the dead, "who rest in the Lord."

The use of church bells dates as far back as the second century of the Christian era, the earliest of which we have any account being introduced by St. Paulinus in Campania; after which their employment gradually became general throughout Christendom. In the sixth century lofty campaniles became distinguishing features of the principal churches. Chimes or peals were rung as at the present day, although the practice of ringing in accordance with regular musical notation is said to be peculiar to England, and to have existed in the time of the Saxons. Strictly speaking, although they are sometimes confounded together, a peal consists of but four bells, set upon the first, third, fifth, and eighth notes of the common scale; while a chime contains all the eight notes. With a full chime, tunes may be played; but if we consider for a moment, it will be seen that a surprising number of changes may be rung upon a peal. Three bells only are capable of six different changes; four bells, twenty-four changes; five bells, one hundred and twenty.

In early times, bells were held in great honor—almost in reverence—being washed in holy water, regularly named, and hung with much ceremony. The abbey church of Croyland had a peal of seven bells, named Suthlac, Bartholomew, Betelin, Turketel, Tatwin, Bega, and Pega; and, in our own day, Big Ben and Big Tom are famous bells in England.

Numerous superstitions attached to church bells in mediæval days. Evil spirits were supposed to flee at their sound, infection to be dispersed, thunder and lightning abated, and high winds appeased—all of which is recorded in a Latin inscription, found on many ancient bells. A number of these inscriptions have been preserved, some of them in English, but they are usually such wretched doggerel as not to be worth inserting. One of the best runs as follows:

To call the fold to church in time,
We chime;
When joy and mirth are on the wing,
We ring;
When we lament a departed soul,
We toll.

Different methods of ringing announced the various services of the Roman communion. The eight hours of prayer, Matins, Lauds, Prime, Tierce, Sext, Nones, Vespers, and Compline, had each their appropriate summons. There were also the Ave Maria, Angelus, and Sanctus bells rung during service.

There are a number of very large bells in existence—the great bell of Moscow being the largest in the world. This, however, was never hung, as it was cracked before being lifted out of the pit where it was cast. Its weight is four hundred and forty-three thousand seven hundred and seventy-two pounds; its height, nineteen feet; and circumference around the margin, sixty-three feet eleven inches. This monstrous agglomeration of metal has had a doorway made of the broken side, and is fitted up within as a chapel. Another large bell at Moscow weighs two hundred and eighty-eight thousand pounds, and requires twenty-four men to ring it. Of course, it is only used on solemn occasions, and its tone is like the diapason of a great organ, or the rolling of distant thunder.

The largest bell in England, that of York Minster, weighs twenty-seven thousand pounds, and is only seven feet seven inches in circumference. The famous bell of Erfurth, named Susanne, weighs thirty thousand pounds, and the great bell of Notre Dame de Paris, presented by Louis XIV., in 1680, thirty-eight thousand pounds. There are no remarkably large bells in this country.

Bells are cast by pouring the liquid

metal between two cases, or moulds, of earthenware, corresponding to the inner and outer side; or between iron cases, perforated to allow the escape of the inflammable gases engendered by heavy castings, which are liable to explode, if care is not exercised. Their metal is composed of copper, tin, zinc, and lead, in unequal proportions—the copper greatly predominating. Silver was formerly supposed to be requisite in order to give softness of tone; but this, we believe, is purely imaginary. Great nicety and long experience is called for in their manufacture to secure a pure and uniform tone, free from jangling or harshness. The sound is heard at a greater distance on plains than hills, and in valleys still further—perhaps on account of the atmosphere in elevated situations becoming too highly rarified to be a good conductor of sound.

The belfry should be constructed more open than is frequently the case. Few things can be more absurd than to hang a bell in a small tower, with narrow apertures, filled with close-set louvre-boards, and expect its voice to be very far-reaching. In fact, it would be well to omit louvre-boards entirely, when the bell and belfry can be otherwise protected. The latter could be arranged by having its deck made tight with metal roofing. But the bell is still exposed, and the bell-ropes form conductors for leading water through the deck. It is, therefore, perhaps advisable to introduce the louvre-boards, though at a considerable distance apart, in order not to obstruct the sound; their width being correspondingly increased to prevent the rain driving in. Design IX. is an example of this treatment. The belfry should be ceiled above and below, to secure the sound from passing up or down the tower, and the mouths of the bells should not be lower than the base of the openings.

IN THE BELFRY.

I.

Bells in the ancient minster,
  Ring out in the sunlit air,
Like solemn muzzeins telling
  The hour of praise and prayer.

O'er the sounding aisles and the pavements,
  Worn hollow in by-gone days,
They roll forth their mighty voices,
  As though they had thundered, "Praise!"

Then again, as some gentle spirit
  Were bidding their tumult cease,
They sink in a silver cadence,
  As though they had murmured, "Peace!"

It seemeth as they were praying,
  When their tremulous voices grew dim;
And their Ave and Sanctus mingle,
  With the strain of the saintly hymn.

And still, for ever and ever,
  O mighty bells! ring on;
Thanks giving for years departed,
  Hope telling for years to come.

II.

O the golden wedding music!
  How it carols, and thrills, and swells,
Higher, and higher, and higher—
  Drowning the voice of the bells!

Till the bells, in the happy contest,
  Win o'er the Psalm again,
And their mellow triumph welcomes
  The forthcoming bridal train!

Peal out, merry bells! to greet her
  With honor, the fair young Wife!
To her listening ear be telling
  The tale of her future life;

With a joyous note for her gladness—
  A tender tone for her love—
A solemn and soothing echo,
  Of her prayers to God above.

And still, for ever and ever,
  O jubilant bells! peal on—
A song of the joy around her,
  A song of the joy to come!

III.

Toll, bells! for the heavy-hearted;
Toll out! again and again;
Wide swings the door of the minster,
Slow enters the funeral train.

O Death! as a king we greet thee!
Hail, King! thou hast bowed us low;
Vainly we sue thy pity—
Vainly thy grace would know.

O children of ours departed!
O friends of the vanished years!
Are ye deaf to our frantic pleadings?
Are ye blind to our streaming tears?

Toll, bells! let them hear your clangor;
Up there nearer Heaven you seem;
Though your cry from the vault reëchoes
Like sounds in a weary dream.

And still, for ever and ever,
O dolorous bells! toll on;
Till Death shall be king no longer,
Till our mourning and pain be done.

IV.

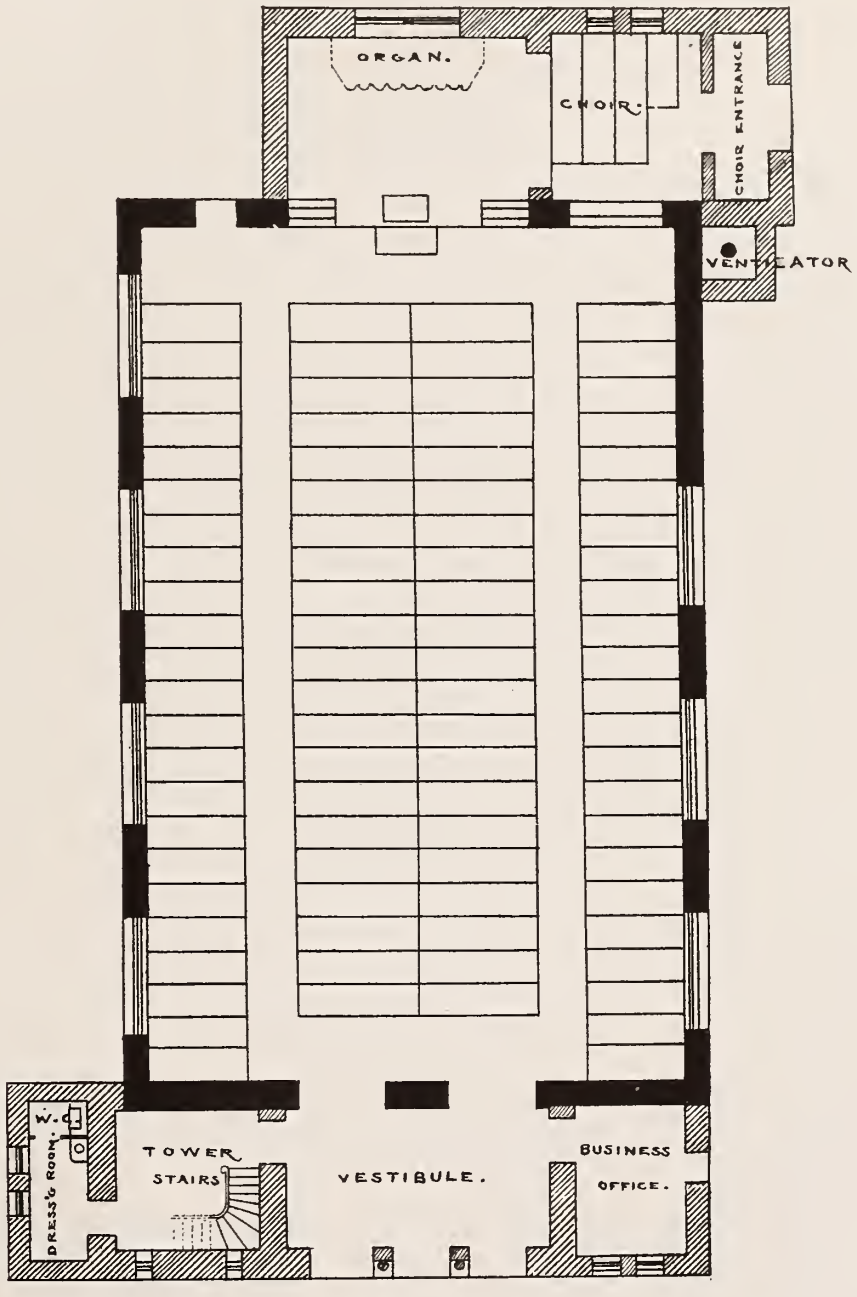
Chime, bells! in a clear carillon;
Alleluia! o'er all the earth;
For the coming of Christmas morning,
For the joy of our Saviour's birth.

Chime, bells! for His Kingly pleasure
Our incense and gold we bring;
The heart poureth out her praises,
The lips to His glory sing.

Sweet Lord! may Thy peace indwelling,
Content every weary heart;
Grow dearer than earthly treasure,
Sink deeper than earthly smart.

And still, for ever and ever,
O bells! chime on and on;
Till the sorrowful years be over,
Till the Heaven of our love be won!

PLATE 34. DESIGN 17.



GROUND PLAN.

5 0 10 20 30 40.

DESIGN XVII.

In designing sectarian churches, we think it well to introduce a style, perhaps, less associated with conventional forms of Catholic architecture. We have here introduced a design which was intended as an alteration of an old building, the original outline of which is indicated by the dark portion on ground plan. It belonged to a wealthy congregation, who had worshipped for many years within the four square walls of the unpretending structure; until, as cultivation advanced, a building more in unison with modern taste and refinement was felt to be a necessity. The old church was solidly constructed of substantial stone-work, with a massive tie-beam roof, from which was suspended a flat lath and plaster ceiling—the whole forming a building of the severest Puritan type.

To remodel a structure of this character to suit more esthetic ideas was an undertaking of no little difficulty; the manner in which it was accomplished is shown by that portion of a lighter color on plan. We thus formed in front a large vestibule, at the right of which is an office for the business purposes of the society, while the tower to the left contains a staircase, which approaches the belfry, and a small gallery, situated over the vestibule. Side-galleries have, however, been omitted.

At the rear we have added a recess, separated from main building by a decorated arch, of sufficient depth to contain the organ; the illuminated pipes of which form an agreeable background to the vista. These pipes are arranged so as not to obstruct the circular window behind, which is filled with stained glass —the smallest being placed in the centre, and those of a larger size rising above the window at the ends. The key-board is located within the apartment on the right, which is intended to serve as a choir—opening into the auditorium by spacious arches. The singers have an entrance into this by an external door, protected by a small vestibule.

The remodelling of the auditorium then became a point of study. The design comprehended the removal of the old ceiling, disclosing a space of some twelve feet above, which had heretofore been wasted. It was thought best to include this, putting up a ceiling in accordance with the slope of the roof, and allowing the tie-beam trusses to show. These were smoothed and neatly cased, the struts ornamented, and spandrels filled up with pierced tracery. The coloring embraced the decoration of the ceiling, which was tinted in blue, powdered in moderation with gold stars. The trusses were painted of a rich chocolate, relieved with bright vermilion and gold lines, and the walls were diapered;—the organ recess being of a much richer character than the auditorium; the motive in this case, however, being merely esthetic, without reference to symbolism.

The old windows were removed, and their places supplied with modern stained glass; while the original pews, which contained some five hundred sittings, were replaced by modern work in ash and walnut.

At the right of the perspective view, we have shown a lecture, or Sunday School building, and on the left a house for the minister. These, however, we will not enlarge upon here, as they have already been described in other articles.

PLATE 35.

DESIGN 17.

E. A. SARGENT, Del.

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PERSPECTIVE VIEW.

CHAPTER XVI.

ARCHITECTURAL PROGRESS AMONG THE SECTS.

We ought, perhaps, to offer some explanation of the digressions we have made in the present chapter from the subjects of this work—the architecture and history of the Church. We quit the path we had marked out, feeling that it cannot but be gratifying to note the progress going on among the sects, of late years, toward a better appreciation of religious art, and a higher religious tone. In many cases the observance of Christmas, the Easter flowers, and the attention to ecclesiological details all prove that an advance, however slight, has been made toward that union of all fellow Christians in the fold of the Church, which, please God, shall come before the end of all earthly things.

Thus the Gothic edifice, which we have perchance entered at random, with its stained glass windows, open timber roofs, and polychrome decorations, might seem one dedicated to the immemorial worship of the Church, were it not that the altar—the grand centre of that worship—has no place within its walls; no sanctuary rail symbolizes the barrier between the sacred mysteries of faith and erring man. Side-galleries break the line of those lofty and otherwise beautiful columns, and the organ-loft is a fixed fact, not likely to be soon or easily done away. Nevertheless, the building is a vast advance on the whitewash and bare plaster of yore, and as great a revolution has been effected in the sentiments of the worshippers in this temple reared with sincere homage to the Triune God we mutually adore.

Not in the present day would it be possible to find repeated such an incident as occurred in the boyhood of one of the writer's aged relatives. Bred up a strict Congregationalist, the good old

gentleman was wont to relate how in his youthful days he had thought it an essential service rendered to the Lord to ride under the windows of the Episcopal church in his native village, and with his whip-handle break as many panes as he could reach! Whether the exploit was hailed with admiration by his family, he never mentioned.

Such a state of feeling toward the Church was, however, but a dim shadow of what existed in pre-revolutionary days, when, in New England, Churchmen, Romanists, Quakers, Baptists, and Jews were placed under the same ban, and suffered the like persecutions from those grim worthies in steeple-crowned hats, ycleped Puritans or Separatists. It is rather singular, though perhaps not unnatural, that these good people who had left England professedly to enjoy freedom of conscience, should have been so sharply after the heels of any venturesome individual who claimed an equal privilege. With them the definition of orthodoxy was, "my doxy"; and of heterodoxy, "any other doxy"; and the result they drew from that proposition was simply, "Believe what you like, by all means —but believe anything contrary to *our creed*, and off go your ears!" Ear cropping, tongue splitting, the pillory, and the scourge, were the lightest penalties incurred by any dissent from Puritan modes of worship.

Unfortunately, it seems a principle inherent to our fallen nature, that when persecuted we too frequently avenge the wrong—not on the oppressors—but on some perfectly innocent individual who chances to be weaker than ourselves; and so it was with the Puritans in this country. Incensed at what they considered unjust reprisals and penalties inflicted on them after the Restoration, they crossed the water only to inaugurate in turn a persecution so relentless, as to excite the astonishment of their brethren in England, and call forth from the home government a sharp command to desist.

But a more striking instance of prejudice and superstition carried to extremes, was shown in those remarkable prosecutions for an imaginary offence—the trials for witchcraft—which took place in Salem and other towns, of which Cotton Mather has given us an account in his veracious work, entitled, "*Wonders of the*

Invisible World; being an Account of the Trials of Several Witches lately executed in New England."

It is almost incredible that even in such an out of the way corner of the world as Massachusetts such a monstrous delusion should have possessed an entire community. For this was an age of marked scientific discoveries. In the mother country, Harvey had just set beyond a doubt the circulation of the blood; Halley investigated the properties of the atmosphere; the Marquis of Worcester invented a rude, yet practicable, steam engine; and, on all hands, alchemy and astrology were laughed to scorn as the figments of an age of ignorance. But at Salem, the witch finders—that tribunal awful and absolute (a very Council of Ten) were gravely putting on trial for her life many an unfortunate old crone, whose worst crime was the possession of an ugly face and a crabbed temper, and who had a pet cat to console her loneliness. The most absurd accusations were received in all good faith; she had been seen riding on a broomstick; she conversed freely with toads and frogs, who, of course, were her familiar imps in disguise. If a poor baby was discovered screeching with a pin running into it, that pin was placed there by a witch. If a gouty old selectman suffered from an indigestion, a sorceress had inflicted the cramps and colic of which he complained; in short, a thousand malignant pranks were attributed by witnesses who doubtless believed at the time every syllable they alleged; and the miserable victim might think herself fortunate to be only whipped at the cart's tail, or dragged through a horse-pond. If she floated in the latter operation, of course she was a witch, and must be burnt forthwith; if she sank, why, drowning was only too good for such a wretch.

At the same time, Sir Edmund Andros, the governor of the province, has been handed down to posterity as the most odious of tyrants, because he persisted in having the English Church service celebrated, and on one occasion forced the doors of the "Old South" for the purpose of holding service there on Good-Friday.

We do not doubt the sincerity of our Puritan ancestors, nor, like Coit, consider that they were actuated in their emigra-

tion to this country by motives of gain, under the cloak of religion; but we think even their most ardent admirers cannot help admitting that they carried their views to extremes, and in their rigid banishing of all the beautiful externals of religion, and all the harmless amusements of life, would have made this world a place of mourning and sorrow, more dreary than the most rigid conventual seclusion. Lord Macaulay has given an admirable description of the peculiarities of this singular body of men, which we quote below:

"The persecution which the Separatists, or Puritans, had undergone, had been severe enough to irritate them into savageness and stubbornness. After the fashion of oppressed sects, they mistook their own vindictive feelings for emotions of piety; encouraged in themselves by reading and meditation a disposition to brood over their wrongs, and when they had worked themselves up into hating their own enemies, imagined they were only hating the enemies of Heaven. In the New Testament there was little, indeed, which even when perverted by the most disingenuous exposition could seem to countenance the indulgence of malevolent passion. But the Old Testament contained the history of a race selected by God to be witnesses of His unity, and ministers of His vengeance, and specially commanded by Him to do many things which, if done without His special command, would have been atrocious crimes. In such a history it was not difficult for fierce and gloomy spirits to find much that might be distorted to suit their wishes. The extreme Puritans, therefore, began to feel for the Old Testament a preference which, perhaps, they did not distinctly avow even to themselves, but which showed itself in all their sentiments and habits. They paid to the Hebrew language a respect which they refused to that tongue in which the discourses of Jesus and the epistles of Paul have come down to us. They baptized their children by the names, not of Christian saints, but of Hebrew patriarchs and warriors. In defiance of the express and reiterated declarations of Luther and Calvin, they turned the weekly festival by which the Church had from primitive times commemorated the resurrection of her Lord, into a Jewish Sabbath. They sought for

principles of jurisprudence in the Mosaic law, and for precedents to guide their ordinary conduct in the books of Kings and Judges. Their thoughts and discourse ran much on acts which were assuredly not recorded for our imitation. The prophet who hewed in pieces a captive king, the rebel general who gave the blood of a queen to the dogs, the matron who, in defiance of plighted faith and the laws of Eastern hospitality, drove the nail into the brain of the fugitive who had just fed at her board, and who was sleeping under the shadow of her tent, were proposed as models to Christians suffering under the tyranny of prelates and princes.

"Morals and manners were subjected to a code resembling that of the synagogue, when the synagogue was in its worst state. The dress, the deportment, the language, the studies of this rigid sect were regulated on principles resembling those of the Pharisees, who taunted our Lord as a Sabbath-breaker and a wine-bibber. It was a sin to hang garlands on a maypole, to drink a friend's health, to fly a hawk, to hunt a stag, to play at chess, to wear lovelocks, to put starch in a ruff, to play on any musical instrument, to read the Fairy Queen. Rules such as these, which would have appeared insupportable to the free, joyous spirit of Luther, and contemptible to the serene and philosophical spirit of Zwingle, threw over all life a more than monastic gloom. The learning and eloquence by which the great reformers had been eminently distinguished, and to which they had been in no small measure indebted for their success, were regarded by the new school of Protestants with suspicion, if not with aversion. Some Precisians had scruples about teaching the Latin grammar, because the names of Bacchus, Mars, and Apollo occurred in it. The fine arts were all but proscribed. The solemn peal of the organ was superstitious. The light music of Ben Jonson's masques was dissolute. Half the fine paintings in England were idolatrous, and the other half indecent. The extreme Puritan was known at once from other men by his gait, his garb, his lank hair, the sour solemnity of his face, the upturned white of his eyes, the nasal twang with which he spoke, and above all, by his peculiar dialect. He

employed on every occasion the imagery and style of Scripture. Hebraisms violently intruded into the English language, and metaphors borrowed from the boldest lyric poetry of a remote age and country, and applied to the common concerns of English life, were the most striking peculiarities of this cant, which moved, not without cause, the derision of both prelatists and libertines."

It is no small argument in favor of modern enlightenment that all such narrow-minded prejudices have yielded in a great measure to more enlarged ideas, and, with the exception of the Quakers, all denominations are building churches which in architecture and decoration have little to distinguish them from those of the Anglican communion, the omission of the chancel only excepted.

GLOSSARY.

ACANTHUS.—A plant, called in England "bear's-breech," the leaves of which are imitated on the capitals of the Corinthian and Composite orders.

AISLES.—The lateral wings of a church on each side the nave; of less altitude than the nave, and covered with a lean-to roof.

ALTAR.—An elevated table in Christian churches, dedicated to the sacrament of the Holy Eucharist only.

ALLEYS.—The passages between the pews; sometimes erroneously called aisles.

ANTEPENDIUM.—A hanging for covering the front of an altar; frequently made of the richest silk or velvet, and ornamented with the most costly and elaborate embroidery.

APSE.—A semicircular or polygonal wing of a building, vaulted with a semi-dome.

ARABESQUE.—A species of ornament used for enriching flat surfaces—either painted, inlaid in mosaic, or carved in bas-relief; it consists of a fanciful mixture of all sorts of figures, of men and animals, real and imaginary, often truncated and growing out of plants; also, of all sorts of fruits and foliage involved and twisted, and upon which the animals or other objects rest.

BAPTISTERY.—A small chapel, either attached to or separate from the church, containing the font.

BASILICA.—The name applied by the Romans to their public halls, either of justice, of exchange, or other business. The ground plan of these buildings was, with some changes, generally followed in the early churches, which also long retained the name; and it is still applied to some of the churches in Rome by way of honorary distinction.

BAYS.—The spaces between the columns of the nave.

CAPITAL.—The head of a column, consisting of a series of mouldings, and frequently elaborately sculptured.

CENTRING.—The temporary support placed under vaults and arches, to sustain them while they are in course of building; usually a frame of wood-work.

CHAMFER.—An angle which is slightly pared off is said to be chamfered. A chamfer resembles a *splay*, but is much smaller, and is usually taken off equally, or nearly so, on the two sides. It applies to wood-work as well as stone.

CHANCEL.—The eastern end of a church, appropriated to those who officiate in the services; and formerly separated from the nave and other parts in which the congregation assemble by means of a screen (*cancellus*), from which the name is derived. It comprises two parts—choir and sanctuary.

CHAPEL.—A small building attached to a church or cathedral, and separately dedicated; also, a detached building for Divine Service.

CHIMNEY.—This term was not originally restricted to the shaft of the chimney, but included the fireplace. There does not appear to be any evi-

denee of the use of ehimney-shafts in England prior to the twelfth eentury.

Choir.—That part of the chaneel between the communion rail and the chaneel arch.

Clere-story.—That portion of the nave wall extending above the aisle roofs, and piereed with windows, in order to light and ventilate the upper portion of the church.

Cloister.—A eovered ambulatory or walk, usually forming three or four sides of a hollow square; they likewise served as passages of eommunication between detaehed buildings.

Collar-beam.—A horizontal tie, conneeting a pair of rafters at any point below the ridge, and above their feet.

Coping.—The eovering eourse of a wall, either flat, or sloping on the upper surface to throw off water; sometimes called also eapping.

Corbel.—A term peeuliar to Gothic arehiteeture, denoting a projeeting stone or pieee of timber, which supports a superineumbent weight. Any construetion whieh is carried by eorbels, so as to stand beyond the faee of a wall, is said to be *corbelled out.*

Credence (called also the Prothesis).—The small table at the side of the altar, on whieh the elements are plaeed before eonseeration.

Cusp.—A point formed by two parts of a curve meeting; henee, applied to the projecting points formed by the meeting of the small arehes, or *foils*, in foil arches or traeery.

Diaper-work.—A mode of deeorating a surface, which consists in eovering it with a continuous repetition of a small flower, leaf, or similar ornaments, either carved or painted. If earved, the flowers are entirely sunk into the work below the general surface; they are usually square, or diamond-shaped, and plaeed elose to each other.

Dripstone (ealled also table, weather-moulding, water-table, and hood-mould).—A projecting tablet over the heads of doorways, windows, archways, niehes, ete., for the purpose of shedding water.

Entablature.—The superstrueture which lies horizontally upon the eolumns in elassie architeeture. It is divided into the *architrave*, or part immediately above the column; *frieze*, the eentral spaee; and *cornice*, the upper projeeting mouldings.

Epistle side of a Church.—The south side—assuming the altar to be the east.

Fald-stool.—A portable seat made to fold up in the manner of a eamp-stool. Formerly, when a bishop was required to offieiate in any but his own eathedral ehurch, where his throne was ereeted, a fald-stool was plaeed for him in the choir; and he frequently earried one with him on his journeys. The term is frequently, but erroneously, applied to the litany-stool, or small low desk at which the litany is enjoined to be sung or said.

Finial.—In the old writers this term ineluded the whole of what Riekman calls the pinnacle; but it is now usually eonfined to the buneh of foliage whieh terminates pinnaeles, eanopies, gable-ends, ete. In modern Gothie, finials are frequently made of iron.

Font.—The vessel which eontains the consecrated water to be used in baptism. Aneient fonts were always large enough to allow of the immersion of infants—the basin being a foot, or rather more, in depth, and from one and a half to two feet in diameter. There are a few fonts of Norman date made of lead; but, with these exceptions, the eommon material for them is stone, lined with lead, and having a hole in the bottom of the basin for the escape of the water. By the constitution of Edmund, Archbishop of Canterbury (A. D. 1236), fonts were required to be covered and loeked. At that period the covers are likely to have been little more than flat, movable lids; but they were afterward highly ornamented, and earried up to a very considerable height in the form of spires.

Gargoyle.—A projeeting spout, used in Gothic arehiteeture, to throw the water from the gutter off

the wall. Sometimes they were perfeetly plain, but more frequently carved into grotesque figures; these are commonly represented with open mouths, from which the water issued.

Hammer-beam.—A beam very frequently used in the trusses of Gothic roofs. Each pair of principals has two hammer-beams, which occupy the situation of a tie-beam, but do not extend across the whole width of the roof. The ends of hammer-beams are often ornamented with heads, shields, or figures of angels bearing shields or labels.

King-post.—The middle post of a roof, standing on the tie-beam, and reaching up to the ridge; also called crown-post.

Lintel.—A piece of timber or stone placed horizontally over a doorway, window, or other opening in a wall, to support the superincumbent weight.

Louvre-boarding.—A series of sloping boards placed in an unglazed aperture so as to admit air, but exclude rain. They are eommonly to be found in belfries. In modern work, large slates are substituted for boards.

Mullion.—The slender pier whieh forms the division between the lights of windows, screens, etc., in Gothic arehitecture.

Nave.—The centre or body of the church, extending from the western entrance to the chancel, and eovered with a double-pitch or gable-roof.

Orientation.—Applied to turning the chancel toward the east; symbolizing the birth of our Saviour. Ecclesiologically, the chancel end.

Piscina.—A shallow stone basin or sink, with drain, placed near the altar; used to receive the water in which the priest washes his hands, as well as that with whieh the ehalice is rinsed; it is placed within a niche, though the basin frequently projects before the face of the wall, supported on a shaft rising from the floor.

Poppy-head.—An elevated ornament, used on the tops of the upright ends which terminate the seats, stalls, etc., of a church. They are sometimes merely cut into plain *fleurs-de-lis*, but are frequently carved with leaves, like finials, and in rich work sculptured into animals, figures, etc.

Purlins.—The horizontal timbers which rest on the principals of a roof, and support the common rafters.

Quoins or Coins.—The external angles of a building. When the walls are of rongh stone-work, the quoins are eommonly of ashlar—that is, squared and hammer-dressed stone.

Rafters.—The inclined timbers forming the sides of a roof, which meet in an angle at the top, and on which the laths or boards are fixed to carry the external covering. These are termed *common rafters*. In trussed roofs they rest upon the *purlins*, which are themselves supported by the *principal rafters*.

Reredos.—The sereen at the baek of an altar; sometimes enriehed with niches, pinnacles, statues, and other earved deeorations, or painted in polyehrome. They not unfrequently extended across the whole width of the sanctuary, and were sometimes carried up nearly to the ceiling.

Respond.—A half-pillar or pier attaehed to a wall to support an arch. They are generally employed at the terminations of ranges of pillars, such as those between the body and aisles of churehes.

Ridge.—The upper angle of a roof; it has usually, though by no means always, a piece of timber running along it, called the ridge-pieee, upon whieh the upper ends of the rafters rest. The tiles with which it is eovered are frequently ealled ridge-tiles.

Rood and Rood-beam.—The rood was a eross, or erucifix, formerly erected over the entrance of the chancel; and, when complete, aeeompanied by the figures of St. John and the Blessed Virgin, placed one on each side. It was supported by a beam, called the rood-beam, or by a gallery called the rood-

loft, over the screen. This was approached by a small stone staircase in the wall; often to be found in ancient churches where the screen and rood-loft have been destroyed.

Rood-tower.—A tower built over the intersection of a cruciform church.

Renaissance.—The revival of classic architecture in the fifteenth century, greatly influenced, however, by the Gothic styles which preceded it.

Sacristy.—A room attached to a church, in which the sacred vestments and other valuables of a church were preserved, and in which the priest put on his robes; sometimes included within the main walls of the building and sometimes an adjunct. In England this name does not appear to have been so common as vestry, but on the continent it still prevails.

Sanctuary.—The eastern part of the chancel, containing the altar. This is divided from the choir by the Communion rail.

Sedilia.—The seats on the south of the sanctuary.

Stalls.—The seats for the clergy and choristers on the north and south of the choir.

Spandrel.—The triangular space between the arch of a door, and the mouldings over it; the term is also applied to similar spaces, included between arches and straight-sided figures surrounding them.

String-courses.—Horizontal bands or lines of moulding in a building.

Transom.—A horizontal mullion or cross-bar in a window.

Transepts.—The north and south wings of a church. They are usually carried above the aisles, and covered with gable roofs, which intersect with the roof of nave, making the church uniform in plan.

Voussoirs.—The wedge-shaped stones with which an arch is constructed; the upper one, at the crown of the arch, is termed the keystone.

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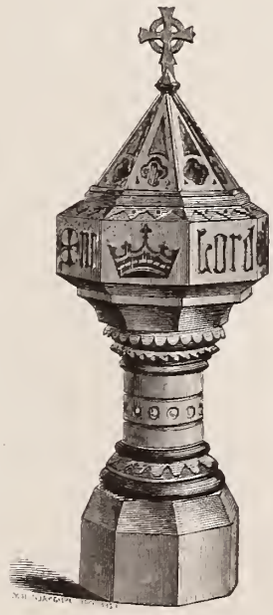

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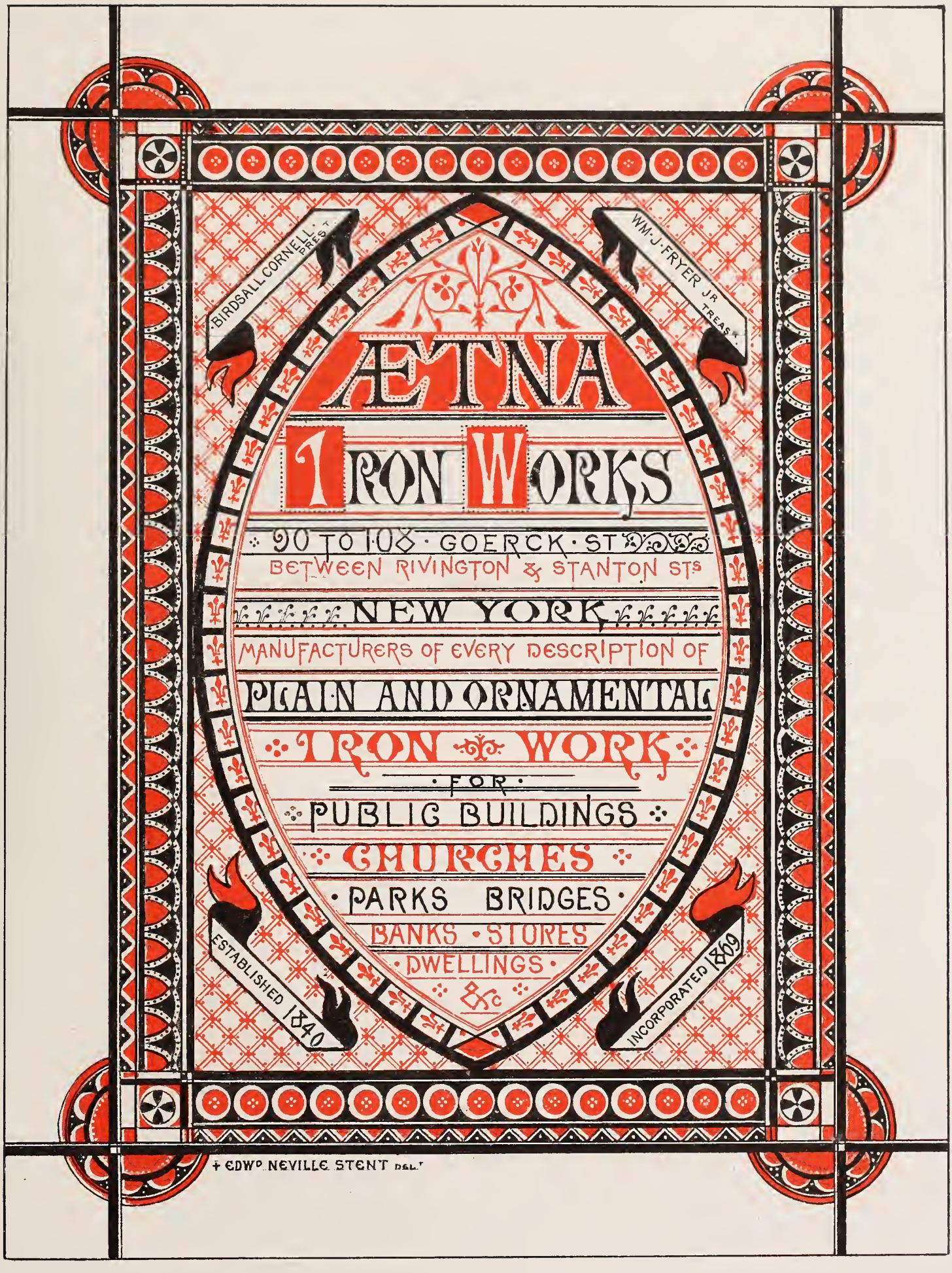
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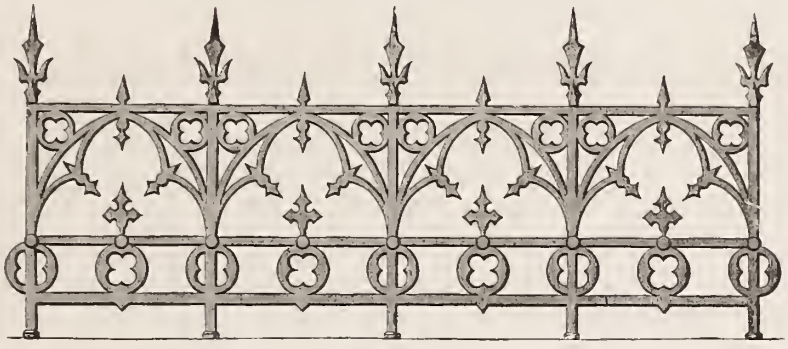

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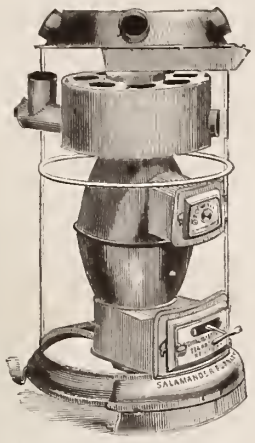

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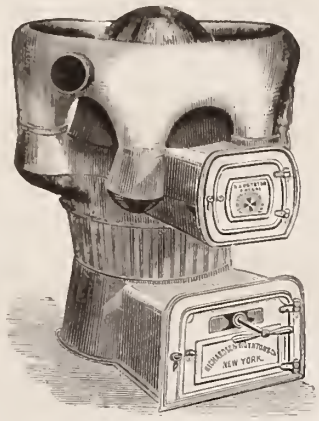

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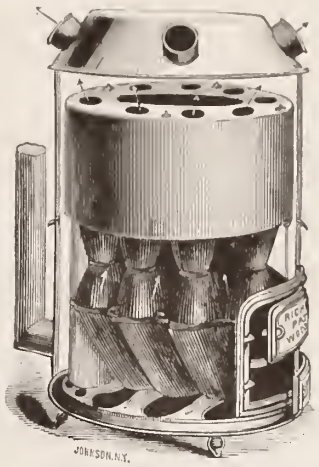

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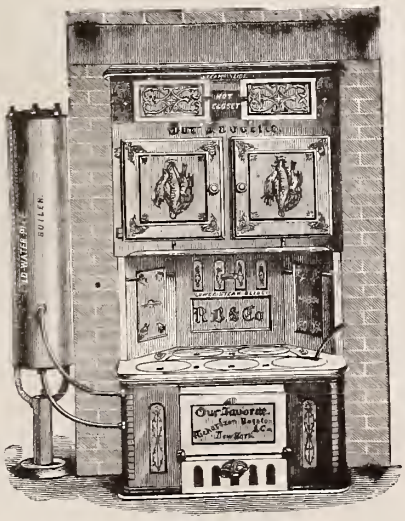

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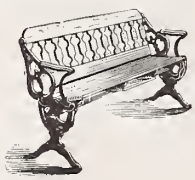

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